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Potable Water and the Public Health.

A FRIEND of the writer was riding over a mountain pass in Algeria, when a faint mist seemed to rise over part of the landscape. In a few seconds fair towns and villages, which had formed conspicuous features in the view, were no longer discernible. The rider rubbed his eyes, and thought he was dreaming; he feared that he was struck with blindness, or with some new form of disease. But do all that he could, the fact was this,—the towns were gone!

A sharp, short shock of earthquake had taken place, of which the movement of the horse had prevented his rider from becoming aware, and the result had been the overthrow of the towns in question. It was not until he reached one of them, or, at least, its ruins, that the traveller was reassured as to his own perfect sanity.

It would be an over-statement to say that an equal effect was produced on our minds by the debate on the analysis of potable water at the Institution of Civil Engineers (of which a proof has just been issued, in anticipation of the next quarterly Journal of the Proceedings of the Institution). But those who have been, like ourselves, old supporters of sanitary reform, will share in our feeling of bewilderment at the form of the debate. It was not that science was contending with ignorance, grotesque as are the contrasts often presented in such a conflict. It was not that ignorance was contending with ignorance, of which we have instances yet more common and yet more droll. But it was science on horseback contending with science on horseback,—a sort of tournament in which all the knights were good, and all did their best, but no real aim of warfare was attained or proposed. Nay, it was worse than that. It was an academical debate, by able and educated men, in which two opposite views were supported, either of which, if established in its naked truth, would render it a hopeless question to obtain potable water except from the still.

We do not exaggerate. Nor do we think it easy to exaggerate the mischief that is done by the advocacy, on the part of able and learned men, of views that, whether founded on truth or not, their propounders can never have seriously attempted to fit to the possibilities of actual life.

"Chemists," said Mr. Folkard, the able writer of the very clever but equally unpractical paper discussed, are "powerless to help the sanitarian in discriminating between wholesome and unwholesome water." "Microscopists and biologists," he goes on to argue, are no better helps. "The only safe course, in the author's opinion, is to reject all sources of supply unless they stand the test of absolute freedom from organic substances so far as can be ascertained; or, preferably, of rigid examination by tracing the water from the time it falls to the earth as rain till it enters the reservoir or well." And where are these sources to be found for 4,000,000 of Londoners? Professor Tyndall said that "he had a cascade near a little house on the Alps, 7,000 ft. above the sea, and although it was charged with water coming from the snow-fields of the Alps, if he took a drop of that clear water and infected an organic infusion with it, in forty-eight hours the infusion would become putrid, and swarming with organisms." Alas for the pure flood of the Dora Grossa at Turin!

Dr. Tidy, on the opposite side of the question, "maintained that a distance of ten miles was sufficient for the purification of water under proper conditions" (p. 27). Thus, according to the debates on one side, river-water can never be, and can never be made, fit for human consumption. According to the opposite view, river-water is so naturally self-purifying that we are almost always safe in using it. And this is the year 1882! And these are chemists, doctors, microscopists,—men steeped to the lips in science! How is any one to survive? Or, rather, how is it that any one is yet alive?

The cause of sound and practical sanitary reform is seriously injured by the assertion of such extreme views; and that all the more so from the portion of truth with which they may be united. True, neither analysis nor the microscope can solve certain questions. But how many are there that they can and do solve? And what wisdom is there in underrating a mighty engine of science because it is not almighty? True that decomposing organic matter is wholly destroyed when brought in contact with an adequate dose of oxygen, and that nature has provided, in the fall of the cascade and in the rush of the torrent, a means of affording the requisite oxygen to the running waters. But does it follow that, when we have to deal, not with a peat-coloured mountain stream, but with an artificially restricted water-course, into which the civilisation of the nineteenth century throws abominations which the pagan of the time of Hesiod would have considered it to be a direct provocation of divine displeasure so to treat, we can expect nature to act as a manufacturer of Condy's Fluid, and to become at once scavenger and chemist? The absurdity of riding these notions to death, whether in the one or the other direction, becomes apparent on the slightest reflection. What practical aim do the advocates of these views propose in their enunciation?

There is one consideration which we would humbly request all persons who come forward with very sweeping principles on the subject of potable water to bear in mind. London must drink. Her enormous population, increasing at a rate which doubles itself in forty years, must have a certain quantity of water. How much will be required is not matter of vague estimate. In 1890 so many million gallons, in 1900 so many, in 1910 so many, the statist can tell with the utmost precision, on the assumption that the rate of growth of the past half-century is maintained for the half-century that is to come. And the controlling consideration is this. We know what is the summer flow of the Thames at Gravesend. We know that that flow consists of all the water collected from springs, brooks, wells, rivers, or other sources within the area of the water-shed, which is not evaporated, or which escapes in a mode that has not yet been traced to the sea, whether this water has or has not passed through the animal system of man or of beast, as a certain portion of it certainly has done. And we know that the date may be fixed, and that not in a very remote future, when the whole of this water, so measured in its minimum discharge, will not be 30 gallons a piece for the inhabitants of the Thames valley. Whence is the supply to come for the future increment of the population? Where is the sense of picking here, and choosing there, and straining at a gnat in a third place, when we are likely to be face to face with a water famine?

We have before now referred to the subject of this actual limitation of the earth-springing waters of the London Basin, however they may be dealt with, and from whatever source they may be derived. It is no doubt a somewhat similar consideration that has led one projector to endeavour to tap the sources of the Severn, another those of the Wye, and a third to decant Ullswater lake into London cisterns. These great schemes, in spite of their cost, and their great political and military risk, have all the same fatal defect of limitation of yield, in face of progressive increase of demand. There remains but one source of supply which can be regarded as permanently adequate to the demand. Towards utilising that source, therefore, it behoves every practical man to turn his attention. And that all the more so because, seeing that in, let us say, 1950, it will be absolutely necessary to impound the rain-water, it is not a day too soon to begin the study of the best method of utilising it. We are providing for a certain want,—if the continued existence of London be regarded as certain,—and the moment that a true solution of the problem be arrived at, there will be a demand for the utilisation of the scheme.

One, two,—shall we say three?—centuries hence, if no convulsion or change in the order hitherto known intervene, life in London will be impossible if the inhabitants have not a good mode of impounding, rendering clear, brilliant,

and wholesome, the rain as it falls, and of doing, probably in minute detail, for this supply what Nature herself does in the provision of her purest fountains. Is it not somewhat foolish to lose time now in debating about tracing this brook to its source, or rejecting the water of that well,—all petty, individual, transitory details,—and leaving untouched the great master problem which will some day demand solution? While Dr. Thudichum wants "the water from the downs of Hampshire, filtered through hundreds of feet of chalk," while Mr. Homersham requires "uncontaminated spring water, derived from a considerable depth below the surface of the earth"; while Dr. Tidy sticks to the Thames, on the ground "that water purified itself in a running river he was as certain as he was of his own existence"; while Mr. De Rance points out the utility of the construction of "dumb wells"; while Mr. Robinson thinks a duplicate supply feasible and desirable,—the fact remains that each and all of these competing sources will shortly be quite inadequate to supply the wants of London. If, indeed, as Mr. Latham remarked, "as all sources of water supply are due to atmospheric causes, and as the author had stated that it was useless to look for purification by any mode which could be adopted by the engineer, such as filtration or percolation (because the germs could pass a thousand abreast through a filter); therefore, if the rain-water was impure at its source, how could it ever be purified?" What then? The only answer to this terrible dilemma,—which is, perhaps, a sufficient one,—is afforded by the census. People do live, and do drink water. But, apart from imaginary evils, the great question of quantity is assuming, or promises to assume, a no less serious aspect than that of quality; and it is to be regretted that a discussion such as that to which we have referred should have had so very little of a really practical bearing on this part of the subject.

HEATING, LIGHTING, AND WATER SUPPLY IN RUSSIA.

RUSSIANS are in some matters exceedingly conservative, and this applies in a marked degree to the mode of heating their dwellings. The apparatus used for that purpose throughout Russia by the middle and upper classes is still the so-called Russian stove, which is, however, a misnomer, as it is of undoubted Dutch origin, having been introduced from Holland by Peter the Great. It is a large clumsy brick structure, faced with common white glazed tiles, erected in one corner of the room, weighing from 1½ ton to 8 tons, and reaching almost to the ceiling, the fuel used being chiefly birch, pine, and fir. Yet the Russian stove is the most unpractical, if not the least comfortable, of all the means by which human ingenuity has contrived to generate an artificial heat. So unsightly is it, that in the houses of the wealthy it is concealed as much as possible by mirrors and other articles of furniture. Then in the poorer dwellings there is the *tchoogoonka*, something like an English ironing-stove, which is apt to get red hot, rapidly raising the atmosphere of the room to a suffocating heat, and as rapidly chilling it when the fuel is consumed. Great efforts have been made to arrange the Russian stove so as to be able to use pit coal or coke instead of wood, which is every year becoming dearer. On the authority of Mr. Pirotsky, a member of the Russian Technical Society, and lecturer at that institution, there would be a great advantage in the use of mineral fuel, as he calculates that half a cubic fathom (7 ft.) of 14 in. wood billets required for one stove per month can be substituted by 8 poods (1 pood = 36 lb. English) of English coal at 20 cop. per pood (31s. per ton), and one cubic fathom of firewood costing 20 roubles (60s.), answers to 80 poods of coal costing 16 roubles (48s.). In employing mineral fuel the above gentleman points out that the grate or fireplace should be of comparatively small dimensions, as when it is large, like in the old-fashioned stoves, the fuel does not concentrate itself in a heap, but becomes scattered and burns badly. He also recommends the adoption of hermetic doors, at the same time regretting their costliness in Russia, which precludes their coming into general use. It would therefore seem that there is a wide field open in Russia for some of our manufacturers with a practical invention of an inexpensive effective stove to be heated with coal or coke, and at the same time answering the requirements of Russian taste.

The stove most in vogue in Russia for cooking purposes is what is called the *paitch*. It resembles the peasant's stove, which is something like a baker's oven. The cooking is done principally in sheet-iron baking-dishes, earthenware and common cast-iron pots; bread is also baked in the paitch. This is the real Russian stove, and dates from time immemorial.

In the capitals and the larger towns the cooking is done on a stove called a *plitah*. It is a thick iron plate, say 6 ft. long by 4 ft. wide, set in brick and faced with glazed tiles. There is no boiler, and only an oven at the side for baking. The doors, both of the fireplace and oven, are made of sheet iron. Altogether it is a very clumsy contrivance, and takes up a considerable space in the kitchen. The system of heating for cooking purposes is, like that of our own country, very extravagant, the arrangement of the *plitah* being such as to consume an inordinate quantity of fuel.

Modern heating apparatus include fireplaces and stoves, hot-air, hot-water, and steam calorifères, the methods employed for ventilation also coming under this head. In the province of heating by hot-water and hot-air, and ventilation on a large scale, a good deal has been done by the St. Petersburg Metal Works in establishments such a barracks, hospitals, churches, laundries, &c. All this work has been executed,—based upon scientific data,—with artificial moistening of the air, and with arrangements for regulating the supply of heat according to requirement. Baron Derschau has introduced heating by steam, with an invention of his own,—an electro-magnetic thermometer, which rings on a certain degree of heat being reached. In vogue are also calorifères of cast iron, of various constructions, copied from foreign models.

In the ventilation of the rooms of private houses little or nothing has as yet been effected. A system of ventilation, without draughts and exposure to cold, which would remove the noxious results of the excessive heating customary in Russia, would be much appreciated for the private dwellings of the enlightened classes. Among the stoves manufactured in this country, and which have found favour in Russia, may be mentioned the well-known Gurney stove, which has been adopted in several private and public establishments. The greater part of the heating apparatus referred to above are made in the capitals. The raw materials in this industry are cast iron and sheet iron. The former in its crude form is obtained from England, and until lately, by a certain manœuvre, duty free.

Three ineffectual attempts were made to light the city of St. Petersburg with gas. The first was during the reign of Alexander I., when, just as all arrangements were complete, the buildings caught fire, and the plan was abandoned for some years. The second attempt was made after the accession of Nicholas I. The high and ungainly building intended for the gasometer was injudiciously placed near the Winter Palace, and formed so prominent a deformity that the Emperor, in 1838, was glad to buy up the whole of the premises belonging to the company, for the purpose of having them pulled down. The company then went to work again, and in the autumn of 1839, when people were beginning to look forward to a light winter, the whole illumination was opened and closed on the same day by a frightful explosion, by which the gasometer was destroyed, a number of people were killed, and the money of the shareholders was lost. At last a manager, Mr. Ayliffe, was sent from England, who in a short time brought everything into proper order, and the company again started, and has been prosperous, we are told, ever since.

There are now three gas companies at St. Petersburg, with a constantly-increasing business. At the time of the Crimean War, and for some time afterward, St. Petersburg was very imperfectly lighted. In many of the streets there were only oil-lamps, and in many more no lamps at all. At present, taking it all in all, the gas-lighting of the capital is thorough and brilliant. Whether it is the result of atmospheric influence or not, but it is noticeable the gas in the streets seems to burn brighter than in London, yet it is made exclusively of British coal. The lamp-posts, which are of a more ornamental and solid kind, are placed closer together than in the London streets. It should be remarked that up till now there still exists a prejudice against using gas in rooms of private dwellings. It is confined chiefly to the yard, entrance-hall, and corridors. As to its adoption in churches, such an act would be deemed by the orthodox the height of sacrilege. Shops, hotels, public buildings, &c., of course avail themselves of this mode of lighting; but the gasfittings are frequently of the most unsightly and common kind.

The lighting with naphtha and kerosene oil has had a considerable share of attention. It is well known that Russia possesses in the Caucasus an inexhaustible supply of mineral oil, especially at a place called Baku, on the Caspian, where the naphtha bursts forth in copious springs. Several towns of the interior, especially those situated on the Volga, are lighted with naphtha-gas, among which is the large town of Kazan. It is used also at the St. Petersburg Imperial Mint, where the entire apparatus for producing it, together with 367 burners, cost 1,500*l*. Many factories and works situated at great distances from large towns have also adopted this mode of lighting, which is considered exceedingly economical. Some experiments have been recently made at St. Petersburg of a novel apparatus of very simple construction, for making gas from crude naphtha. The light of one burner was equal to the light of seven candles, and the product of 1 pood (36 lb.) of naphtha burned 700 hours, the cost per hour being 0·17 of a copec. Out of 1 pood of naphtha were obtained 350 cubic feet of gas; the lighting power of one cubic foot being equal to fourteen normal candles. Out of these 36 lb. of naphtha a light was derived equal to 4,900 candles; one burner equal to seven candles consuming half a cubic foot of gas per hour. Coal-gas, however, we believe, is still destined to hold its own in Russia, especially when the produce of her extensive coal fields can be carried profitably into the interior of the country. In the coal-producing provinces of the south, such as the Government of Yekaterinoslaf and the country of the Don Cossacks, and the neighbouring provinces where Russian coal finds its way, there is a demand for gas-making apparatus for private use and for factories, &c. In the forest governments there is a request for apparatus for making gas out of wood, and especially of forest-rubbish, such as broken branches, roots, fir-cones, &c., and, in the North, of peat; apparatus for making gas from oil is also in demand here and there. The cost of manufacturing coal-gas from British coal at St. Petersburg is as follows. We will take works producing 12,000 cubic feet per twenty-four hours, and supplying 500 burners: coal at 12 copecs per pood (22s. 6d. per ton), 1 rouble 17 copecs (3s. 6d.) per 1,000 ft.; at 30 copecs per pood (60s. per ton), 18 roubles 60 copecs (6s. 6d.) per 1,000 ft. The introduction of gas into Russia being of recent date, the gas-apparatus industry in that country is yet new; they are supplied to a great extent by England, Germany, and Belgium. As to the general arrangements of gasworks in Russia they are much the same as in this country; there is this difference, however, with the gas-holders, they are contained in a separate enormous brick building with sheet-iron roof, in order to protect them from the snow and severe frosts of the winter. This plan necessitates a number of smaller gasholders than would be required if they could be placed in the open, and all this naturally adds considerably to the cost of construction. Owing to the initiative of the town councils and the new institution,—the *semstvos*, or provincial assemblies,—the introtion of gasworks has been extended to several of the sea-ports and some of the provincial towns.

The Moscow Gasworks Co. is an English company, now noted for the conscientious manner in which it executes its contracts, both with the town council and private consumers of gas.* Our countryman, Mr. Bowyer, has a wide reputation in Russia for the manufacture of gas apparatus of every kind. It is a fact that we seldom if ever hear of an original invention of any moment coming from Russia. That the

* The early history of this company, if we understand rightly, is not a creditable one. Coals, it was stated, were bought in large quantities when not wanted, merely that agents might get their commission, and the whole affair was so managed that the original shareholders, at least those of them that we know, never received a sixpence or a word of explanation. A correct account of the company would be valuable, and might lead some English investors to pause before sending their money into foreign parts. Mr. Leslie, our late consul in Moscow, was at one time manager of the works.

capacity of inventiveness is little developed among the Russians cannot be doubted when we consider that during two decades the number of patents granted to *bonâ fide* Russians amounted only to 200. But, however few may be the original contributions of Russians to science and art, they are quick to appropriate and profit by the discoveries of the West. Yet it must be admitted that latterly a greater self-reliance and originality is noticeable, especially in the province of electric lighting. The Jablochkoffs and Raypyeffs have gained no mean reputation as pioneers of the new system,—shall we say, the light of the future? We may here notice also Colonel Shpakoffsky's invention of a valuable and practical application of lighted naphtha dust produced by a powerful blast, and used for rapidly heating boilers, &c., which has been successfully applied by him to a steam fire-engine and a steam launch of iron construction. In the form of a spray-jet it produces a most powerful light. It is worthy of notice that already in the Caspian and on the Volga some of the steam companies use no other combustible than naphtha refuse. It supplies fuel also for stationary steam-engines. Paraffin, or, as they call it in Russia, kerosine, has been also applied for household cooking purposes. A Moscow manufacturer advertises two apparatus for cooking dinners, boiling coffee, &c. No. 1 (single), at 6 roubles, 18s.; No. 2 (double), at 8 roubles 50 copecs, 1*l.* 5s. 6d.; the consumption of fuel is estimated at less than one copec per burner per hour. Stoves are also made for heating purposes on the same principle, but on an extremely modest scale. Cooking by means of gas has never been popular in Russia, owing partly to the comparatively high price of gas, but principally to the belief that the latter imparts a disagreeable flavour to the viands. It is not at all improbable, however, that were the Russian public acquainted with some of our improved gas ranges the prejudice would be gradually overcome.

There is another Russian invention deserving of notice,—the so-called "Neptune's Lantern,"—devised by Colonel Von-der-Weide, and used in connexion with all kinds of subaqueous operations. The principle consists in introducing a light below water, which is made to burn in artificial air,—of oxygen and hydrogen gas. The apparatus is considered to be a rare combination of cheapness and durability, is practical, and will throw a ray of light to a distance of 40 mètres. It consists of the following parts:—an iron cylinder forming the lantern, with convex glass lamp and powerful reflector. This is connected by means of gutta-percha tubes, with two copper cylinders; one charged with oxygen gas, the other with hydrogen, which are conveyed into the lantern under water; weights and counter weights for holding the lantern in a vertical position.

One of the most useful innovations that have been introduced into the interior organisation of the capital is the establishment of water companies. Until a few years ago in none of the houses was the Neva water laid on by means of pipes; but in each house there was a large water-butt, and the men, whose exclusive business was to fill these reservoirs, were busily engaged all day long with their water-carts, drawn generally by one horse. From the reservoir the water had to be carried by the *dvorniks* or yard-men to the various lodgings right to the top sometimes of a five-storied house. It is needless to point out how precarious was this mode of supplying water, and that the cost was very considerable. The poorer classes in some parts of the town are even now compelled to fetch their water from the river or canal-side in pails slung on a yoke. In the winter holes are cut in the ice for that purpose. This mode of water supply still prevails in all the small towns of the interior.

Since the establishment of waterworks there is naturally a demand for cast and wrought iron pipes, in which latter article we hear the Germans and Americans are able to compete with this country. The plumbers' trade has received a marked extension, and lead pipes for the water supply within the houses are in great request; the duty is only a nominal one (5d. per cwt.). Some of the St. Petersburg plumbers are introducing lead pipes covered inside with a layer of tin as a sanitary precaution. It is found that the soft Neva water, with the action of the atmospheric air, tends to oxidise the common lead pipes, which is so injurious to health. With the new system of water supply, water-closets and baths have been introduced, but only in the houses of the very wealthy, in first-class hotels, &c.

The importance of pure, filtered water is fully recognised, and water filters of various systems, both ancient and modern, are used in almost every household. But in the spring these purifiers are absolutely indispensable; for at that time of the year, when the snow melts, the river for a time loses its accustomed purity, and the want of clean water becomes a subject of general lamentation.

We should here notice a filter of German manufacture in the shape of an inverted cone, which is coming rapidly into vogue since the water has been laid on by means of pipes. It is attached to the water-pipe above the kitchen-tap, and is deemed very practical, and will supply a large quantity of filtered water for domestic use. It has been adopted in hospitals, barracks, hotels, and factories. The apparatus being rather expensive, arrangements are made for renting it at a moderate charge per annum. The filtering material is some sort of an artificial composition, more efficient, it is to be hoped, than some of the compositions used in England.

The large number of fire-engines shown at recent exhibitions held in Russia demonstrates the great extension of that branch of machinery construction due to a certain extent to the increased demand for pumps required for the water supply of railway stations of the numerous new lines in the course of construction, and partly to the extraordinary measures taken by the provincial assemblies and the Government for the protection of buildings in case of fire. Besides, the productions of pumps and small fire-engines can be effected in workshops of limited extent, which do not require expensive mechanisms, and in which the work can be executed by hand with the assistance of a foot-lathe.

Hand-pumps of various systems are being rapidly introduced in the small towns. They are manufactured in the capitals and larger towns of the interior, St. Petersburg, Moscow, and Warsaw being specially noted for their production, among which are also garden-engines, hydropults, &c.; they are of the usual types seen in this country and on the Continent. Among the pumps imported from this country may be mentioned the California, Hollman's steam cannon pump and portable steam pump, Tyler & Son's deep-well pump, with horse-gear, and Thompson's centrifugal pump. The American Bridgewater Co.'s pumps are also used. Most of the large factories and works in Russia have adopted precautions against fire by having a reservoir of water at the top of the building connected with a system of pipes with hydrants and hose. Water-carts on the English model have superseded the old-fashioned casks on wheels.

The questions of heating, lighting, and water supply are burning questions in Russia, and are claiming the serious attention of the Government, the municipalities, and learned societies; to this may be added the question of drainage, which practically does not yet exist in either of the capitals or any of the other towns of Russia, large or small. In conclusion, we cannot but remark that our manufacturers appear to neglect certain opportunities of acquainting the Russian public, the inhabitants of the capitals and large towns, with their productions and the improvements made in them from time to time. In this respect the Germans are far in advance of us. They avail themselves largely of the Russian press for advertising their wares, and wherever there is an exhibition their articles are sure to be there; especially has this been the case with apparatus connected with heating, lighting, and water supply. At the late Moscow Polytechnic exhibition, England was not only not represented in these departments but scarcely represented at all. Yet British goods, especially of metal, have still a reputation in Russia far beyond those of any other country. Besides there is a growing desire among the consumers in Russia to enter into direct business relations with the producers of this country. There are now facilities for this which did not formerly offer themselves,—a widely extended net-work of railways,—the institution of numerous local banks for foreign trade, and an increased and more varied demand for all kinds of goods; towns are increasing rapidly in area, and villages are becoming acquainted with the necessaries of civilised life. Like business men of any other country, the Russian dealers see the advantage of going to the cheapest market, especially since the existence of the low rate of exchange, and the compulsory payment of the duties in gold, which makes a difference of fully 50 per cent. on the former payments in paper money.

ILLUSTRATED EXHIBITION CATALOGUES.

UNDER this general heading we may group three small volumes that are before us,—the "Illustrated Catalogue of the *Salon* of 1882," published under the editorship of M. Dumas;* and "Academy Notes" and "Grosvenor Notes" for 1882, brought out by Mr. Blackburn,† who has now acquired a reputation in connexion with this method of retaining a record of annual picture exhibitions, which he was the first to introduce.

The French and the English productions in question differ in one essential point. The catalogue of M. Dumas offers no comment upon the works exhibited, one way or another. It supplies the purchaser with key-plans of the *Salon* galleries, with a catalogue of all the artists exhibiting, and the names of their works, and with about 400 facsimiles of artists' sketches of their works, including those which were most important or seemed best adapted for reproduction in this way; probably the selection has partly been decided by the readiness of some artists to furnish sketches, as compared with others of their brethren. It gives the titles of the works in French, with an English translation, occasionally of a very wonderful kind; for instance, a statue of "La Physique," intended for the observatory at Nice, is administered to the English reader as "Physic!" But beyond this the French editor does not go; and though we would suggest that on another occasion he should get an Englishman to overlook his translations, these errors are harmless and only amusing; and we at least commend his reticence in refraining from imposing any expressed opinion upon any of the works on his purchasers. In this respect we strongly recommend Mr. Blackburn to follow his example in future "Notes." No one who is capable of thinking for himself about pictures likes to have even the most intellectual criticism obtruded on him in a catalogue, which he buys merely for reference and record. Mr. Blackburn's critical recommendations, when he does introduce them, are not remarkable for depth, and to the best class of visitors (intellectually) appear simply impertinent, while affording no reliable guide to the more ignorant. To us it has been a source of considerable annoyance to see foolish people, who have no understanding of pictures, going about the rooms with these books in their hands, and repeating, like parrots, remarks from their printed guide, which in one sense certainly are about suited to their intellects. We advise the editor in future to content himself with the French system of simply cataloguing and giving illustrations (which was adopted this year by the Royal Society of Water-colour Painters in a charming catalogue which they issued).

The question of the artistic value of the illustrations is another matter. On the whole, there is a marked improvement in the illustrations to Mr. Blackburn's catalogues, and from the large preponderance of sketches marked with an asterisk, he seems to have succeeded in inducing a much greater number of artists to contribute sketches of their own works than formerly. His illustrations are all in the same method of execution and in the same tone (black); in the *Salon* book there are great variations in this respect, some of the illustrations being in warm red and brown tints, apparently according to the taste of the artist; some are rather highly finished, some are mere rough scratches. This idiosyncrasy gives a greater interest to the *Salon* book; but the more equable manner in which the illustrations in Mr. Blackburn's notes are produced has its advantages, as enabling one work the better to be compared with another in this memorandum form, and giving the whole book a somewhat neater and more carefully prepared appearance. Regarding the illustrations in each publication as *fac-similes*, it would seem that the French artists who contribute aim more at effect, and at conveying the feeling of their work, the English more at accuracy of line. On the

* London: Hamilton, Adams, & Co.
† London: Chatto & Windus.

whole, we should say that the figure illustrations in Mr. Blackburn's books are more carefully and cleverly drawn, and have more the appearance of accuracy, than those in the *Salon* catalogue, though they make a far less effective "picture-book," when we come to look at it in that way. The landscapes, on the other hand, are far more effective in the *Salon* book, partly on account of the employment of delicate brown tones, in which some effect of aërial perspective can be conveyed, which is hardly possible in slight sketches in black.

The difference between the general character of subjects, in turning over the Academy and the *Salon* book, is remarkable. There are some decidedly vulgar things among the *Salon* memoranda, and one or two that are worse than vulgar. But one cannot help being struck by the large proportion of subjects of an ideal and poetic class,—works which really suggest something to the mind, as compared with the exceedingly prosaic nature of most of the Academy subjects. Such a fine delicate little fancy as that embodied, for instance, in M. Burgers's picture called "The Duet," where a child in some freak of fancy is playing on a pipe in front of a classic statue employed in the same way, seems out of the scope of English art. It is a trifle, but it is a trifle which sets the fancy going, and suggests a number of pleasant wanderings to the mind; and the same may be said of other ideas embodied in the *Salon* collection. French art includes so much that is *spirituel;* in England, we have not the phrase, and have very little of the quality, and what we have is mostly owed to suggestions from French art.

OUR SCANDINAVIAN ART-ANCESTORS.

THE interesting paper read by Mr. Harris Stone at a recent meeting of the British Association,—and printed in these columns,—describing the Viking ship lately discovered in Norway, eminently served to draw attention to a period of history and a civilisation which, closely connected as it is with the civilisation and history of our own country has too long been left even by archæologists, in undisturbed oblivion. And now comes an exhibition at the South Kensington Museum of ancient relics gathered from the countries grouped in modern times as Scandinavia, which can scarcely fail to bring it prominently before the public mind. The great Scandinavian nation after a glorious and conquering era of existence has sunk into comparative insignificance, driven back to the bleak regions from which its heroes centuries ago sallied forth, sailing South, and East, and West, across even,—so tradition states,—the Atlantic to the still "undiscovered" America. With a past as glowing in great deeds, it is little wonder that archæology is a popular branch of study in the North, keeping alive, as it does, the memory of the great days when the Scandinavian nations were united in their conquests and their power, when their civilisation made them the brilliant superiors of countries which then were plunged in barbarism, though now their masters and oppressors. The field is a rich one for the archæological student, and has already in Denmark, Norway, and Sweden yielded an ample harvest of information. The literary remains of the Sagas and Eddas have long been known, but a new light was thrown on the subject by the study of the widely-scattered Runic inscriptions, the old laws, the store of folk-lore in which the Scandinavian nations are peculiarly rich. Still more recently a further advance has been made in the attention paid to the long-neglected architectural and other remains scattered over the Scandinavian peninsula, Denmark, and their dependencies. The story of a past civilisation, all trace of which was considered as lost, has been found; it is to Scandinavia that we owe that most recently introduced branch of antiquarian study known as prehistoric archæology, and which has opened up such a wealth of unsuspected information. The period of their history which has most interested the northern archæologists, and on which less doubtful sources exist than the earlier epochs, is that in which the power of the Scandinavians was greatest, when their vessels bore their conquering *Vikings* not alone to our shores but to those of France, the whole Baltic, Greenland, Iceland, and the still less congenial Mediterranean.

Some months since our learned contemporary, the *Revue des Deux Mondes*, published a long and able article from the pen of M. Alfred Maury, on the subject of the civilisation of Scandinavia. In view of the present Exhibition we are disposed to think that a summary of this article will be acceptable, relating, as the subject does, to the civilisation of a people on whom we may justly look as in a large measure "flesh of our flesh and bone of our bone."

From the Romans we gather but scant information respecting the Scandinavians. The Romans had been unable to conquer either the inland Vindes or the maritime Saxons, whose supremacy on the sea presaged the fame that their descendants have to this day retained. United with their neighbours of Jutland, Schleswig, and Frisia, the Angles, the Jutes, and Frisians, themselves hardy sailors, their armed fleets penetrated every corner, every estuary of maritime north-western Europe. When this race of bold corsairs had finally settled down, some in the interior of Germany, others on our fertile shores, they were replaced on the sea by a fresh race of depredators from Scandinavia, and known to the unfortunates on whom they constantly made their descents as Normans, or men of the North. More adventurous than even the Saxons, they advanced further afield. The Low Countries, France, and Great Britain, from the eighth to the tenth century, were frequently a prey to their rapacity. The declining power of the Romans in Albion and in Gaul was unable to resist the invaders, whose descents became yearly more frequent and ruinous. The churches and monasteries even were not spared. French ecclesiastical annals are full of lamentations as to the Norman pirates, whose vessels bore their crews far up the great rivers into the very heart of the country.* Paris itself, in the ninth century, was besieged by these Northern conquerors, and on one occasion capitulated to their chief; and it is an historical fact familiar to readers, how eventually the Normans settled down in France, and founded the province that to this day bears the name of Normandy. It is a feature worthy of notice that these settlers, the pirates of old, soon took a foremost place among their neighbours.

No feeble followers of the debased Roman traditions, their genius struck out for them a new path, and as Englishmen we feel no shame in owning as our ancestors the warlike yet civilised Normans, whose renowned leader was in later years to place the crown of England on his head. An origin for this superiority of the Normans must be traced in their Scandinavian origin, as it is in that of the Danes, who invaded our coasts, where they eventually settled down. The imprecations heaped on their heads, the reputation they bore for their ferocious and barbarous piracy, we feel were exaggerated, and it is interesting to trace from the studies of modern archæologists the proofs of their civilisation, and its origin, of the hordes the appearance of whose fleet was the signal, if we are to believe the chronicles, of a terrified flight from the coasts inland. The proofs which research has furnished the modern Scandinavians in their patriotic task, are ample to show us that in the ninth and tenth centuries the population of Denmark, of Sweden, and of Norway lived on in the enjoyment of a social system which in industrious activity and refinement may be fairly said to bear comparison with that of the Christian nations of the West. As long ago as 1852 M. Worsaae published a learned work on the Danish and Norwegian rule in the British Isles, and in which he most satisfactorily showed the share due to this Scandinavian conquest, in the civilisation of our Anglo-Saxon ancestors. By means of his research we see the Danes, who ruled us under Swegen and Canute, or Cnut, in a position of importance that no English historian had shown; and the picture of the Danish power in the eleventh century was a preparatory step to the same author's subsequent rehabilitation of the dreaded *Vikings*, the *Seeraüber*, as the Germans call them, and the study of whose civilisation, overwhelmed and maligned by the establishment of Christianity, has been followed in their own home. Long before the Germans had learned to cultivate their poetry, the Scandinavians possessed a literature of their own, a mythology in which modern erudition has clearly traced another bond of union existing between the races of Europe and those of Persia and England.*

The Scandinavians, inhabitants of a bleak country, and living under a churlish climate, were by nature forced to seek abroad their very necessaries, and from the earliest times a hardy, warlike, and maritime race was developed. All the great races of antiquity were warriors, and their civilisation has invariably followed their progress in the art of war. The Vikings as warriors and pagans, were looked on by their Christian enemies solely as pirates, and, no stranger having ever visited their country, their barbarism was a settled point in the minds of their enemies. This was, we now learn, but comparative. By their vessels we see they had arrived at a high degree of civilisation; each vessel, so far from being manned by a crew of pirates, was a portion of a well-armed fleet, commanded often by a prince; these true "ships of the line" bore various names, some, from their length, termed *Drageskibe*, dragons; winged serpents, *Lindarme;* serpents, *Snekkar;* in addition to the traces existing of such vessels in Scandinavia, we know that the Normans descended on our coasts in regular "liners." We have seen, from the recent paper of Mr. Harris Stone, describing the discovered remains of an antique Scandinavian vessel, that the art of wood-carving figure-heads, &c., and probably of painted decoration, was known to the "Vikings." The chroniclers speak of the Normans' vessels as adorned with brilliant figures, often gilt; the sails of the leader's vessel of silk. This degree of luxury and skill in naval architecture is not the sole proof of the civilisation of the "Vikings" in the ninth and tenth centuries; the costume worn by their chiefs, and relics of which have been discovered in their unearthed tombs, point to a further degree of civilisation. A *tumulus* existing in Jutland, dating from the end of the Pagan period, is described by M. Worsaae as containing, among other objects, a woollen mantle with a fur edge, the stuff woven with a pattern of death's heads; with the mantle was found a belt of gold-woven silk, as were also two bracelets, likewise of silk and gold. That these objects were of Scandinavian origin, —the silk and gold alone excepted, — there remains no doubt.

The commercial relations of the Scandinavian were considerable, and their wealth must not solely be set down to their piracy. With the East they held constant communication, the presence of Oriental coins in Norway, and discovered in the Baltic Islands, as also the Oriental character of the pieces of jewelry found with the dead are conclusive proofs of this fact. It was from the East that the Scandinavian obtained the silver which the native jewellers worked up, and which appears to have been more used than even gold. The discovery of Byzantine coins in the Scandinavian peninsula, proves that commercial relations existed between the North and the Eastern Empire as early as the fifth and sixth centuries of our era, and that these relations were particularly active in the tenth and following century. It was from the East that came the gold-embroidered silks that the chiefs used as their mantles. In the discovery also of a large number of Anglo-Saxon coins of the time of the Heptarchy show an active traffic between our country and Scandinavia. We have proofs here that it was not invariably as pirates that the "Vikings" sailed to our coasts. At the close of the ninth century Eric, son of the king of Norway, had received the surname of *Merchant*, from the fact of his vessels trading with foreign countries. The Scandinavians exchanged the few products of their soil, and their fisheries, for the objects of which they were in need; but, as we find so often in ancient times, commerce and piracy went hand in hand. Canute the Great concluded with different nations treaties of commerce. To every point of the still-undiscovered compass these hardy sailors pushed, the Baltic was familiar to them,—Wulfstan, in the time of Alfred the Great, visited the Gulf of Finland,—and far west the Faroë Isles, the Shetlands, the Orkneys, the Hebrides, and Iceland were explored by the Scandinavians; Greenland in the tenth century was colonised by the Norwegians, as numerous Runic inscriptions and remains of dwellings attest. That the Scandinavians reached America is a tradition which no proof to the contrary has yet come to

* Depping's "Histoire des Expéditions Maritimes des Normands" will be found to supply many details of these incursions.

* See an admirable work by Dr. Wägner, translated into English and edited by Mr. Anson, "Asgard and the Gods," etc. 1880. 8vo.

overthrow, and is more than probably founded on fact.

With a commerce and warlike exploration thus extended, a marked progress in the civilisation of the Scandinavians might justly be expected, and such as throughout ancient history we find to be the case. Excavation has brought to light a large number of objects belonging to the ninth and tenth centuries, jewels, ornaments, clothing, arms, and utensils, the proofs of a state of elegance and refinement of, however, marked a Scandinavian character, not purely of Scandinavian origin; Byzantine and Latin influences are traceable. At the epoch which the northern archæologists have termed the Iron Age, commerce had already brought to the shores of the Baltic objects of western and southern origin, which served as models to the native workmen,—a fact ably shown in a paper read some six years since by M. Engelhardt on the "Influence of Classic Industry and Civilisation on those of the North." The earliest productions of this Northern art are, as might be expected, crude and coarse. But of however strictly foreign origin the art of the "Vikings" may be, it none the less is thoroughly Scandinavian; there exist, indeed, few arts of a purely original character; the art of each country can be traced to some foreign source, but in each case, after a due lapse of time, and subject to local influences, a character special to each is developed. This is the case with the Scandinavian nations, whose ornamental surroundings were not alone those acquired by purchase or force from other lands, but in many instances were of strictly native origin. Those not rich enough to wear jewels and gold, contented themselves with bronze, often gilt, and the fibulas found are of extreme elegance; in many cases we meet with a favourite form of Scandinavian ornament,—the serpent or dragon,—these being of a date previous to those works in which the decoration is more complicated, and in which, for instance, will be found worked out *à jour* figures of men and of animals. Such fibulas were worn by the chiefs; others, again, were worn by the women, these bearing a distinctive character, decorated often with figures of doves or ravens. During all the period which the northern archæologists have termed the "Middle Age of Iron,"—extending between the years 500 to 700 of our era,—we find the Scandinavians displaying in their decoration an extreme degree of wealth. In the tombs unearthed, in addition to numerous necklaces, bracelets, earrings, and medals, have been found glass beads of varied colours, mosaics, rock crystal, amber, and even bronze, for in these early ages the male sex will be seen to largely share their helpmeet's love of ornament. The Scandinavians of the Viking period wore, like the Gauls, gold rings and bracelets, and the Copenhagen Museum contains many treasures of the jeweller's, and the gold and silver smith's art of this early epoch. That in such a society the arms and armour of a warlike race should likewise have received the attention of the decorator is only natural; silver damascened hatchets, inlaid in some extant specimens with rubies and gold, heightened with *niello* work, though rare, exist. Little wonder that such treasures became in the families of their owners heirlooms, and the workmen who had forged and adorned them famous and honoured. The bucklers were of wood, covered with leather painted, even gilt; their armour resembled that in use contemporaneously in the West,—helmets and coats of mail have been discovered. Thus on land, as at sea, these hardy warriors were redoubtable enemies.

The use of cavalry was not unknown to them, their horses being shipped from home; and the decorative character of the harness in use furnishes a further proof of the refinement of these "sea-robbers"; to the custom of the burial with each chief of his war-horse to bear him to the brilliant *Walhalla*, we owe the preservation, in many cases, of specimens of the harness used by the Scandinavian chiefs; it is often garnished with gilt bronze, often gold, often silver. In Southern Norway was unearthed some years back a spur of solid gold, weighing no less than 11 ounces, and decorated with purely Scandinavian motives; and the same refinement was carried through all the trappings both of horse and chariot. As a curious proof of the native origin of this decorative art, in a tumulus near Viborg was recently discovered by the side of a number of such trappings in *repoussé* work the very tool used by the workman for his purpose, and elsewhere various other ornamental motives were discovered in the workshop of a contemporary blacksmith.

The art of the locksmith had acquired a like degree of refinement; keys of the most delicate workmanship have been brought to light; a relative degree of perfection in such a branch naturally implies a like refinement in most of the surroundings of our Scandinavian ancestors, in their furniture and in the construction of their houses, at that time built entirely of wood; contemporary literary authorities speak of great halls decorated with skilfully carved images, mostly of a religious character. The utensils discovered in the course of the excavations have all denoted a high degree of civilisation; goblets, cups, and many objects such as in the present day would come under the head of plate, all of extreme beauty of design and execution, still exist to show us the domestic refinement of these "pirates" at home. In their burial this same refinement was largely carried out, and the tumuli have supplied the archæologists with a rich store of suggestive objects of study and admiration. The monuments which were placed over these graves when containing some chief, while showing no highly-developed architecture, prove the Scandinavians not to have been much inferior to the Romans of the decadence; these monuments usually consist in an upright stone bearing Runic inscriptions, a field of study much followed in the North, and which has already yielded many most interesting results.*

With the introduction of Christianity, the characteristic art of Scandinavia was to receive a fresh influence, while, at the same time, the native element still strongly shows its existence, and long after the old religion was dead the remains of its art are traceable; the wealth of curved lines interwoven, the introduction for decorative purposes of human figures, quadrupeds, flowers, and serpents, continued all through the Christian middle ages, and as M. Vedel, an eminent Northern antiquary has shown, can still be traced to this day in the carved work produced in many of the remote valleys of Sweden and Norway. How deeply enrooted in these countries of the North are the old myths and traditions, is amply shown by their literature and their rich folk-lore, which have furnished so many materials to the modern poets of Germany, England, and America.

If we are to believe M. Warsaae, his researches on the Danish occupation of Britain show us the Danes, so far from spreading far and wide through our island their barbarism, largely serving to develope our civilisation. They were, indeed no barbarians whose aid Alfred sought, and alliance with whose princes was made by our reigning kings. Canute we see reigning at the same moment over his Scandinavian possessions and his Anglo-Saxon kingdom, in the history of which he has left a revered name for his wisdom and justice. Later on, the bonds with the nation across the German Ocean were broken, but we preserved our Danish population, which, while it mingled with its Anglo-Saxon brethren, still bore its own marked peculiarities, and these we trace throughout all the early history of our island. M. Warsaae has endeavoured in his history above mentioned to trace the presence of the Scandinavian in the British isles, in the north and east of England the Danes,† in Scotland the Norwegians, and again in Ireland; everywhere we meet with the ruling trait of the Scandinavian character, the genius of domination, still strongly developed in our British nature, for the Normans who conquered England were themselves of Scandinavian origin.

The spirit of domination and the genius of colonisation which stamped this sturdy Scandinavian race long existed after they had lost, either through conversion to Christianity or contact with other nations, the original and vigorous character of their old organisation. Little by little the peoples over whom they had long ruled drove back to their home the race of the "sea kings"; if still in many countries visited by the Vikings we can trace their presence in the names of towns, in local idioms or in local customs, all trace of their political influence has long since disappeared with the development of the civilisation they once enjoyed, and the power they wielded, just as we see in the case of so many of the great nations of antiquity. Thus it was with the Egyptians, the Greek rule but enfeebled their tottering power ruined for ever by the Arab conquest. In our own time we see the Turks, whose power once made all southern Europe tremble, which overcame many a brave Christian army, lose, one by one, their European provinces, driven slowly back to the home whence they came; but long after the Turks have been forced back across the Hellespont, there will exist traces in Europe of their presence to tell the tale of their once brilliant power and prosperity. What will happen for the Turk has happened with the Vikings of old. When Christianity spread to the Scandinavian peninsula, the civilisation of the sea kings was overcome and buried with its representants, and now the archæologists exhume its remains to point out to the present generation the traces in their midst of a once ruling power, and a society, the character of whose existence and refinement has been too long overlooked.

* Casts from two of these Runic crosses existing in the Isle of Man, will be found at the South Kensington Museum, which has presented duplicate copies to the Ecole des Beaux Arts in Paris.

† The name of *Sutherland*, preserved by one of the most northern of the Scotch shires, is of purely Norwegian origin; to the invaders it was a *land of the south*. M. Warsaae points to a large number of geographical names bearing a Norwegian origin. In the Isle of Man further traces exist. Dublin, Waterford, and Limerick were, in the ninth century, capitals of small Norwegian states.

FROM THE BANKS OF THE SEINE.

WITHIN the last twelve months there have been considerable changes in the old Faubourg St. Germain; the Boulevard is now almost completed; several of the conspicuous corner houses at the western end, then in the hands of the workmen, are now occupied, and form very important features. In the aristocratic Rue St. Dominique, one of the old *hôtels* is being rebuilt, and is just now enveloped in clouds of dust and a forest of scaffold-poles, while within the year the historic Hôtel de Mailly, which stretched back from the Rue de l'Université to the Boulevard St. Germain, has disappeared, and on its site an entire street, the Rue de Mailly, has been built. The houses which form this new thoroughfare are models of the most approved modern style of Parisian *maison de rapport*. The exterior decoration is reduced to a simplicity in which all trace of the florid and vulgar ornamentation in vogue during the late Empire has entirely disappeared, to give place to the classic refinement of the "Style Louis Seize," as near as possible the French Adams style; while the distribution of the interior plan is the result of the most ingenious consideration. In every house there is the traditional *porte-cochère*, with the well-decorated passage-way into the little courtyard at the back; in each house the equally traditional *loge* of the *concierge*, on the ground-floor. In the small courtyard, at each side, are arranged a coach-house and a two-stalled stable, with loose box, affording two lodgers accommodation, on a small yet ample scale, for horses and carriage. The owner thus has the certainty of feeling (a feature left in considerable doubt with our system of separated coach-house and stables), not only that "the man" cannot possibly use the carriage without its being known, as he has to rumble through the *porte-cochère*, but he is at hand at any moment, the horses can be seen, and the absolute cleanliness of the stable ensured. As for the arrangements of the upper floors, they are only improved modifications of the existing type, such as every one who knows a French house must have had reason to admire; the feature of the pleasant ground-floor with a corner room lighted by three windows is, however, an agreeable novelty; in addition the luxury of balconies is afforded to each floor.

In another aristocratic neighbourhood, the Faubourg St. Honoré, a like speculation has covered the site of the once familiar *hôtel* of the Duc d'Aumale,—whose two superb bronze green gates and jealous enclosure wall always reminded us a little of Devonshire House,—with a new street and a batch of new houses; like those in the Rue de Mailly, they are of the most approved modern type, one which we would wish might receive more study from our strictly professional builders than is the case at present; for let it be understood that such houses in Paris are not invariably the design of the architect proper, but of a specially educated section of the profession, whose chief study is devoted to the necessities of town architecture, the practical consideration of the treatment of small

spaces of highly-rented land, the application to the modern exigencies of existence in the present day, of all the recent improvements, and the desire on the part of the landlord to give to his tenants,—what, it is true, they demand,—the utmost room, thoughtfulness of plan and comfort that can be supplied for the outlay. On these points it is our belief that we may have much to learn from the study of what our foreign brethren are doing in Paris, and not only in Paris, but in all the great capitals of the Continent. In this direction the arrangements of those who, knowing this, have enabled our young architects to travel abroad with a view to sending home not so much their opinions of the great creations of the past, as has till now been the tradition with travelling students, as reports on the works of the present, will, it is to be hoped, meet with further encouragement and extension.

Against the ample accommodation which is being afforded for the well-to-do in Paris, there must always be set off the daily increasing difficulty found by the working classes in obtaining cheap and suitable quarters. It is a grave, and, if considered, far from satisfactorily solved question which presents itself both in London and Paris. Each day, as the old neighbourhoods are demolished, the artisans who found there the rents that suited their narrow means are driven further away from the centres of employment, near which they naturally desire to remain, and practically scarcely any accommodation is being afforded for their wants. The landlords cannot, of course, be expected to prefer, to large rents and good tenants, comparatively small and irregular returns, and legislation is not sufficiently active. On this point London is certainly far ahead of Paris; and, apart from the cheap means of transit to the suburbs now afforded, the numerous blocks of industrial dwellings which have replaced in London some of the once most wretched dens of our metropolis, show at least that we have grappled to some small extent with one of the chief difficulties which arise from the peculiar conditions of modern urban existence.

Among the further changes which a year has worked in Paris it is not out of place to mention that the Champ de Mars, the site of the Great Exhibition of 1878, has at length been restored from its chaos of brickbats, iron girders, scrubby trees, and deserted kiosks, to something like order. The space has fortunately not been entirely given up again to the manœuvres of the École Militaire. Before long a small park, occupying about a fifth of the whole area of the once sandy plain, and to bear the name of the Champ de Mars, will be thrown open to the public. The new garden is of the type that the French excel in laying out with all their traditional skill, aided by modern science; and we may be sure that the public of the thickly-populated district which surrounds the Champ de Mars will not be slow to avail themselves of the advantages of their new pleasure-ground. The nurses and the children will take possession of the place, and the seats,—of which in Paris there are invariably plenty provided,—will be always occupied. Statues, purchased generously by the municipality from each year's *Salon*, will soon come to add to the charms of Nature, and the rising generation thus healthily formed in the midst of greenery, of birds, of trees and flowers, pure air and art.

The new room at the Cluny Museum, which the papers announced would be thrown open early in May, is, we may at once mention as the result of a special visit to the interesting old *hôtel*, not likely to be on view for a long time. A few glass cases are all that decorate the room, where were exhibited two years since the Viollet-le-Duc drawings, of which at the time we spoke in these columns. But the visit to the quaint old museum, with its priceless, if scarcely sufficiently classified treasures, always serves, to any one who has known the spot for any length of time, as a pleasant reminiscence of many a past happy and instructive hour. Time was (when we possessed no South Kensington Museum) when "the Cluny" was unique as a field of study for the artist and collector, but the superb gatherings of M. Du Sommerard, the father of the present worthy curator, none the less retain, distributed as they are through the old rooms of the historic and once wealthy monastery, all the charm and value they possessed in the years gone by. How many of our English architects, living and dead, it would be curious to know, have gleaned no small portion of their artistic education here? And still for many a generation the collections of the Cluny Museum will continue to serve as a great enclyclopædia of design.

At the Louvre, during the past year, there have been many important changes, not least interesting among which should be mentioned the special room set aside for the several new pictures belonging to the English school which the authorities have come into possession of, and about which we may at a future date have something to say.

The Museum of Decorative Arts, which has recently opened its doors, is also such an extraordinary advance on the exhibition of last year that it merits further consideration.

As a last detail it may be mentioned that one of the great features of Paris, the Avenue de l'Opéra, is no longer lighted by electricity; dingy gas in the busy thoroughfare now replaces the brilliant Jablochkoff; as a compensation, the court-yard of the Louvre and the Place du Carrousel are lighted by electricity, and the result is certainly interesting, as every one can understand who has observed the effect of the electric light on any architectural feature with which he may have been long familiar by day-light or under the ordinary conditions of artificial light. In other respects, however, the use of the electric light does not seem within the last twelve months to have met with much encouragement on the banks of the Seine.

SUGGESTED IMPROVEMENTS AT THE BRITISH MUSEUM.

IT would be difficult to over-estimate the utility and educational import of the British Museum, with its great and ever-increasing library of printed books and MSS., and its antiquarian and other so costly treasures. The Museum, with its well-known collections, has been for so long a time familiar to the public, and to those who not only glance at its contents, but who "study" in it, that it is difficult for any to imagine any change in it, in its contents, or in its mode of life and management. It would seem to be one of the "fixed" things of huge London; but it is not so, for some and really not a few important and momentous changes are even now in course of going on in it and in its mode of work, and some of them, it must be confessed, not before the time has come for such. If truth be told, there is much yet to be done, and thus in time, and by slow degrees, to make of it an ever-open volume of reference for all that multitude of curious things of which it is the repository. It would be impossible to over-estimate the importance and utility of the great institution in Great Russell-street. It stands quite alone in its special way. And even this vast metropolis, full as it is of such *now* wonderful things, though common at one time, would miss sadly the place wherein alone it can see the actual mind and handwork of the *workmen* and *artists* of the dead though yet living past.

But much, and very much, has yet to be done to make of it,—and we are here thinking of its "antiquity" department,—what it doubtless one day will be, a complete illustrated and open book of the antique, and illustration of the life of the dead, though not-to-be-forgotten, past of things. By referring to a plan of the building and its several divisions and rooms and galleries, it will be at a glance seen how accidental,—there is no other word,—has been the course of things; the several collections, as the Assyrian, have come into it by strange and lucky accident, and have found a place where each one of them could, and as space could be found or made for them, but without any thought of any general "chronological" or other sequence, and with not even, as in the instance of the Parthenon marbles, any thought of their being added to, or in any way being made completely illustrative; for this Greek Gallery does not, and cannot, hold consecutively the "illustrations," imperfect as they are, of the world-famous frieze by Phidias, and which in a larger and longer room, and in one built expressly for it, might be made even more imposing, and striking, and illustrative than they are. In any future additions to the Museum buildings would it not be well to bear this in mind, and, to as nearly as possible, so place this wonderful work of the great Greek sculptor as to give some idea of it as it was in Greek days?

But that to which we would now call attention is the opportunity there would seem to be of a little more looking to method and chronological arrangement in the antiquarian, and, may we not add,—we most certainly ought to do so,—"architectural" department of the museum. After the books, now that the natural history is gone, come these antiquities; the Egyptian, in its long and imposing show of so much that is really of the greatest in art, and impressive in architecture. Not a little might be said of it, for it has suffered but slightly from excessive washing, and cleaning, and repairs, and contrasts not a little favourably with much else near it. Many of the objects might well be so placed as to more nearly approximate to their original position when in actual use, and many would be made yet more striking than they are, and more suggestive of their so distant date of creation, if somewhat differently lighted, as in the instances of the two colossal heads, of Rameses and Menephtah, which unluckily, as at present, face the dull light from the windows opposite the wall of the reading-room, and which all but touches them. None ever understood better than the sculptors of old Egypt did, the value of sunlight, and its effect in the adding to the impressiveness of the colossal forms they sculptured so finely, and with so still and solemn an expression. It would be impossible to find nobler examples of Egyptian work, and they are most surely worthy of a good place in this long gallery, and a fine light.

One single item more in the antiquity department there is, for which, if it lead to a little moving and replacing, will not be named in vain. We allude to the position in the Antiquity Galleries of the capitals of columns, come from whence they will. The capitals are all on the ground, and look as if mistaken for bases of columns. Mr. Penrose, in his careful book on the Parthenon, takes note of the fine play of light and shade on the subtle curve of the Parthenon capitals, as seen in place. This might occasionally, at least, be visible even in the Elgin Room, were but the capital on a level, or, at least, a very little above the level of the eye; but the said capital in the Museum Gallery is on the ground, as though it was the base of a column. Surely this might be readily rectified, and in pointing to it, among so much else, it may not be out of place, even in this short notice, to hint at the advisability of obtaining some architect's advice in any future re-arrangements, so as at least to avoid such simple and elementary mistakes as these.

We have here but barely hinted at an item here and there in this great establishment; but there is one other department of it, which, with the at present empty galleries, might well be looked to. We refer to the Print Room, so called, and to the way in which its contents are at present, as they have always been, hidden from public gaze. But few see the treasures of fine art, and draughtsmanship, and skilful engraving here, so carefully kept; for these museum treasures cannot be seen but by a very limited few at one time, and are at all times difficult to look at and study, some of them being large, and awkward to hold in a good light.

We do not venture to go into details, or to specify what would seem to be most instructive in the Print Room cases, now so closely shut, or what of it would be best worth public exhibition, but one special series of prints and proofs there is which we feel quite sure would be gladly welcomed by the art-loving public and by art students,—we allude to the magnificent series of prints and proofs of Turner's "Liber Studiorum." So much has been said about this famous work of the great painter that it would perhaps be difficult to add more to it, or to amend it, but, if truth must be told, the more you see of this fine series of Nature studies, by Turner, the more there is found yet to be looked at and studied, and read in them. Might we not, therefore, here urge that the whole double series of them, of prints and proofs, of which the Museum has so unique a collection, should be exhibited on the walls of a part of the long and now empty gallery, but so recently filled with the most curious of nature's workmanship? Such exhibition of Turner's readings of Nature's volume would, as we cannot but think, appropriately and significantly take a portion of this space. There is, as will be recollected, no complete and full exhibition anywhere of Turner's "Liber," the few leaves exhibited in the National Gallery being original drawings, and but a small part of the whole work.

EDINBURGH ARCHITECTS.

MR. WILLIAM BURN: MR. DAVID BRYCE.

WE mentioned briefly, in our last, Mr. M'Lachlan's "Notes on Some Old Edinburgh Architects," read at the Edinburgh Architectural Association. Some of our readers, we are disposed to think, will be glad to have the memoirs recorded in full:—

William Burn was born in Edinburgh on the 20th of December, 1789. His father was Robert Burn, a successful builder and architect of his day. One of the father's productions was Nelson's Monument on the Calton Hill,—an example of his skill which, I apprehend, is not generally appreciated. Whatever was his own ability as an architect, Mr. Robert Burn showed much judgment in the professional education of his son. In the year 1808 young Burn was sent to the office, in London, of Mr. Smirke, afterwards Sir Robert, who at that time divided with Sir John Soane the supremacy of architectural position and practice in the metropolis. I need scarcely say that Sir Robert's practice was exclusively Classical,—of the type of the British Museum and Covent Garden Theatre, of which he was architect,—and in these Classical traditions young Burn was brought up. Among his office companions were C. R. Cockerell, afterwards the Professor of Architecture in the Royal Academy; and Lewis Vulliamy, a name well known to the student of Classical architectural works. After a few years' experience in Mr. Smirke's office, Burn returned to Edinburgh, and commenced business for himself. Even at the outset his career was a successful one. In the year 1816 there was an open competition among architects for the completion of the new University buildings, commenced in 1789 from the design of Robert Adam. In the course of the twenty-seven years which intervened between the commencement of the building in 1789 and 1816, Edinburgh had grown, and the requirements of the University along with it; more area was required, and more numerous and larger class-rooms, and consequently Robert Adam's original design for the whole structure was not applicable, and the University authorities for the time advertised for new plans. Many competitors responded, tempted by the bait of a first prize of 100*l.* to the successful competitor, and 80*l.* to the next. The two successful men for these prizes were Wm. H. Playfair, who carried off the first premium, and ultimately was the architect of the work, and Wm. Burn, who bore off the second premium of 80*l.* It is noticeable that this competition brought to the surface the names of the two men who, for the succeeding generation, divided between them the best architectural work in Scotland. Thereafter, for some thirty or thirty-five years, Playfair did more public and monumental work, and Burn more domestic work, than any other single architects of their day. Although Burn was not successful in his college competition, he does not seem to have been without large and important commissions even at that early stage of his career. I find that in the year 1816, the very year of the competition, he was the architect of the Custom House at Greenock, and of St. John's Episcopal Church at the west end of Prince's-street, Edinburgh, showing clearly that even at that early period he was a well-known and successful man. From this time till his death in 1870, for the long space of between fifty and sixty years, the professional life of Burn is a tale of uninterrupted and ever-increasing success. I shall touch upon only a few salient and outstanding points of this long and prosperous life. I have before me a list of 200 out of 700 important works executed by Mr. Burn, and nothing could more clearly give an idea of the extent and importance of his practice. The list of his clients reads more like a roll of the peerage than anything else. Running the eye down the list I find the names of the Dukes of Norfolk, Buccleuch (one of his best friends), Cleveland, Montrose, Hamilton, Rutland, Manchester, Newcastle, Marquis of Westminster, Earls of Derby, Scarborough, Kinnoull, Haddington, Wemyss, Lauderdale, Stair, Galloway, and so on and on. From this perusal of names one cannot help thinking that in the number and influence of his clients Mr. Burn must have occupied an entirely unique position among his contemporaries.

While working towards the large place which he ultimately filled in the architectural world, a few incidents as to Burn, gathered from contemporary literature, and from the lips of those who knew him, may not be uninteresting. And first, as to his appearance, which, when attainable, it is always well to know, we have a description by his old friend Prof. Donaldson. "He had a slight figure with a strong constitution till within a few years. Rain, snow, or frost, never kept him in; and up to eighty, Dr. Cumming (whose church he attended in London) says he only once saw him wear an overcoat. His finely-profiled head and piercing eye, and well-defined features, are powerfully shown in the expressive bust, modelled *thirty* years ago by our mutual friend the late Thomas Campbell. He was frank and plain spoken, occasionally even to roughness; no flatterer, prudent in council, and firm in his opinion when once formed. He was a man of the highest honour, integrity, and independence." So far Prof. Donaldson. We shall have evidence of some of these characteristics of Mr. Burn as we go on. About the year 1830 Burn became acquainted with Kemp, afterwards the architect of Scott's monument, and proved a fast friend to him through life. Kemp at that time, after a somewhat chequered career, was working as a journeyman joiner in Edinburgh; Burn was busy with the plans of a princely house, to be erected at Dalkeith, for the Duke of Buccleuch,—a building which, I need not say, was never erected,—and having heard of Kemp's ability as a draughtsman, he employed him to make some drawings. Instead of making drawings, Kemp commenced to make a model of the part of the building with which he was entrusted. Burn was greatly pleased with the model, and in the end commissioned Kemp to make a model of the whole palace. On this work Kemp was engaged for two whole years. The result was a very beautiful miniature palace, which is still to be seen in the vestibule of Dalkeith House. It is pleasant to know that the familiar intercourse between these two eminent men resulted in the hearty recognition by the elder architect of the architectural abilities of his more humble friend. In the year 1838, when Kemp's design was the one most favoured for the Scott Monument, and great and persistent opposition was offered to his appointment on the ground of his being an obscure and uneducated architect, it was Burn who stood forward in his defence, and successfully assisted him to the appointment which was the crowning triumph of his life. I find in *Chambers's Edinburgh Journal* of the year 1838 a description of the incidents connected with the competition, and when exception was taken to the important national work being handed to a man nearly unknown, Mr. Burn, we are told, "an architect of first reputation, attested to the committee his great admiration of the elegance of Mr. Kemp's design, its purity as a Gothic composition, and more particularly the constructive skill exhibited throughout in the combination of the graceful features of that style of architecture in such a manner as to satisfy any professional man of the correctness of its principle, and the perfect solidity which it would possess when built." The effect of this hearty commendation of the design by Burn was, that Kemp got the work to do, to the successful result which we all now know.

About the year 1842 or 1843 Mr. Burn found his business increasing to such an extent that he deemed it necessary to assume as his partner Mr. David Bryce, who, previously to that, had been his principal office assistant. Thereafter, for a series of years, business was carried on under the well-known architectural names of Burn & Bryce. In the year 1844, Mr. Burn removed to London, leaving Mr. Bryce here, the business still being conducted in the name of the firm. So many of Mr. Burn's clients were in the ranks of the aristocracy who reside in London for so many months of the year, that no doubt it facilitated the despatch of business when Mr. Burn was himself resident there. The connexion between the two partners seems to have been dissolved about the year 1850. In the "Edinburgh Directory" of that year Burn's name drops out for the first time.

It is interesting to know that Burn gave very hearty assistance to Billings in the preparation of his great work, "The Baronial and Ecclesiastical Antiquities of Scotland," published between the years 1848 and 1852. It is understood, indeed, that the publication was mainly set on foot by the generous advance of 1,000*l.* by Mr. Burn. In his London career the tide of Mr. Burn's success never ebbed. His commissions became more numerous and important; his employers were the highest in the land. During the later years of his long life, he seems to have acted as official assessor or adviser to the Government as to the public architectural work. For example, I find in Sir G. Scott's "Life," that in the year 1856 there was a competition among all the best architects of London for the Government offices,—the Foreign and War Departments,—the buildings at the south end of Whitehall, erected ultimately, and very much against his will, in a Classic style, from the designs of Sir Gilbert Scott. In that competition Burn acted as one of the three architectural assessors, the other two being Prof. Cockerell and Fergusson, the author of the "History of Architecture." Mr. Scott had a long and disagreeable battle to fight with the Government of the day, headed by Lord Palmerston, whose ideas on architecture were entirely classical, and therefore entirely antagonistic to the appointment of Scott, and also with the rival architects whose designs had not been successful. In this disagreeable squabble Scott acknowledged his deep obligation to Burn. He says in his Memoirs, "Mr. Burn did not go strongly into the question of style, but took the matter of my appointment up in a determined and sturdy manner in the light of upsetting an unjustifiable combination against a brother architect. He stood by me most manfully and sternly." This reflects all the greater credit on Mr. Burn when we find a page or two before that he and Scott were almost entire strangers to one another. Mr. Burn's long and prosperous career was brought to a close in the beginning of the year 1870 in his eighty-first year. Of his works much might be said, but a few words will suffice. While in the course of his life he designed large and important public buildings his *forte* was domestic architecture. He was very strong in the arrangement of his houses. Professor Kerr says on this point, "I may say that Mr. Burn's plans for country-houses,—speaking as I do, I will not say with authority, but certainly from a careful study of the subject,—were all that one can express by the term faultless. He had so thoroughly acquired the mastery of the demands of that particular problem of plan,—and those demands are neither few nor small,—that he was able, so far as I could judge from a study of a number of his plans, to meet the demands of his clients in such a manner that I may safely say no one else in the country could hope to compete with him." Burn's mansion-houses are to be found in almost every county of the United Kingdom. But one or two might be mentioned by way of example,—Riccarton, for Sir W. G. Craig; Nidorie, for Col. Wauchope; Tynnington House, for the Earl of Haddington; Argowan, for Sir M. Shaw Stewart; Falkland, for Tyndall Bruce; Dartrey, for the Earl of Dartrey; Sandown Hall, for Earl Harrowby; Buchanan House, for the Duke of Montrose; Fonthill, for the Marquis of Westminster; and Montagu House, London, for the Duke of Buccleuch.

Probably the best known of his public works in Edinburgh are St. John's Church, Princes-street; the New Club, the Melville Monument, John Watson's Hospital, the Music-hall, and the alterations on St. Giles's. Mr. Burn has received much abuse for his treatment of St. Giles's, and I think with *not* much reason. No man can be blamed for not being ahead of his time. At the time Mr. Burn altered St. Giles's the revival of Gothic art was in its infancy. Pugin was but a boy, and had published none of the works which gave such an impetus to the study of the true principles of Gothic architecture. It is obviously, therefore, unfair to measure Mr. Burn's work at St. Giles's by the same standard which we have every right *now* to apply to our member, Mr. Hay, who is busy undoing Mr. Burn's work. Burn was not worse in his treatment of our church than Smirke and Wyatt were in dealing with the English cathedrals. We cannot but regret what he did in the way of removing and destroying the old work, but he was not a whit worse in this respect than the foremost man of his day. To condemn him in this matter would be equivalent to condemning Chaucer because he could not spell. I have said so much on this matter, and, indeed, on the whole subject of Burn's life, because so much has been said against him in connexion with St. Giles's that there seems to be some danger of it being forgotten that this much-abused man was one of the foremost architects of his day in a high and important department of his art.

Of his high personal character I have already said a little, but in closing this short and im-

perfect notice of him, I cannot do better than quote the words of a letter which I recently received from Mr. Macvicar Anderson, the accomplished secretary of the Royal Institute of British Architects. He says:—"It is rarely one meets with a character so independent [as was that of Mr. Burn]. His *esprit de corps* was remarkable, and I know many notable instances of his helping others to large works which he might have kept to himself. He invariably stood up manfully for his professional brethren, and since his death I have been struck with the frequency that the remark has been made to me, by men now in a good position, of how much they owed to his kindness and independence. He was a man of exceptionally vigorous character, and his influence among his clients, who were mostly members of the aristocracy, as well as amongst the leading men of the day in society, was remarkable."

You will agree with me that a little time spent in considering the career of Mr. Burn is well spent. In his manliness and honesty and independence, coupled with his apparent entire want of professional jealousy which so often disfigures the characters of professional men, he was a model to all young architects.

After the career of Mr. Burn it is natural to proceed with the story of the life of Mr. Bryce. After Mr. Burn left for London in 1844, there is no man in Scotland who will compare for a moment in the extent and importance of his practice with Mr. D. Bryce. The pre-eminence he retained till his death in 1876. He was born in the year 1803 in Greenside, Edinburgh, and was educated at the High School. His father was a builder here, who united with his building a little architecture. David was apprenticed in his office, and there acquired that technical skill in drawing for which he was distinguished in after years. While yet a young man he became assistant to Mr. Burn in succession to his brother William, who had previously been principal assistant, and who had died early in life. In course of time Mr. Bryce was taken into partnership by Mr. Burn, and this connexion subsisted even after the year 1844, when Mr. Burn removed to London. But Mr. Bryce thereafter was regarded as the head of the firm here. As I have mentioned in Mr. Burn's life, it seems to have been about the year 1850, when the tie was ultimately dissolved. The vantage ground from which he started as the partner of Mr. Burn gave Mr. Bryce great opportunities even at an early stage of his career. We owe to him, early in his life, some of the noblest of our public buildings. Among his earliest works were the ornate British Linen Company's Bank, in St. Andrew-square; the Western Bank, also in St. Andrew-square, now the Scottish Widows' Fund Building, which has seemed to me always one of the most beautiful frontages we have in Edinburgh.

Such buildings as these two soon brought name and fame to the architect; and there shortly followed the Clydesdale Bank at the corner of George-street and Hanover-street, the Subscription Library in George-street, the North British Insurance Offices in Princes-street, and many others. Latterly, we are indebted to the genius of Mr. Bryce for some of the finest modern buildings in this city, Fettes College, the Bank of Scotland, the new Sheriff Court House, and the new Royal Infirmary. These buildings form of themselves a splendid monument to any architect. In Fettes College and the Infirmary there is clear indication of a love for the French Château on the part of the architect. In the Sheriff Court House and the Bank there is seen the masterly command of classic art to suit the requirements of modern days which few but Mr. Bryce have been able to exhibit.

While great in his public works, Mr. Bryce was not less great,—greater, indeed,—in his domestic buildings. It may be said with all truth that he revived the Scottish Baronial style. He has been by far the greatest master in that department. When we compare the buildings designed in this style, applying the beautiful and quaint features of our national art to modern building with the baronial edifices of Elliot and Graham, and even of Burn, with those prepared by Bryce, the contrast is startling. Previous men put on here and there a Scottish feature, which sometimes was and sometimes was not appropriate. Bryce's Scottish Baronial seemed natural to him,—it was his native Doric.

Notable illustrations of this are Cortachy, Forfarshire, the seat of the Earl of Airlie; Ballikinran, the seat of Mr. Archibald Orr Ewing; Castle Milk, near Lockerbie, for Mr. R. Jardine, M.P.; and Kimmerghame, the seat of Mr. A. Campbell-Swinton.

Mr. Bryce's professional life seems to have passed through three phases. We have first the severely Classical style, which might be naturally expected from a pupil and partner of Burn, in the United Presbyterian church in Lothian-road, which, I understand, was his first commission, and the Widows' Fund and British Linen Co.'s Bank; then we have the Scottish Baronial of Cortachy and Ballikinran. Latterly Mr. Bryce seemed to have been infected with a strong love for French art, of which we have a very fine specimen in Fettes College, and a more plain example in the Royal Infirmary. He designed in all these styles apparently simultaneously, and in all with marked success. I know of no architect to compare with Mr. Bryce in the success which attended his efforts in almost all styles. Other men distinguished themselves in one walk, in one style. He gloried and was successful in many styles. The only exception which might be taken to this statement is in Gothic art. I am not aware that he has left his mark here as on the other departments to which I have referred.

After enjoying the proud position of being the foremost architect of Scotland for a period of twenty-five or thirty years, he died in the year 1876, in the seventy-third year of his age.

Apart from his own peculiar studies, Mr. Bryce was a man of wide general attainments. Although somewhat rough in manner, he had a kindly heart, and he was universally esteemed alike by his servants and his employers.*

* To be continued.

ART IN COSTUME.†

LET us now turn a critical eye upon male costume. One of the most obvious things about a man's everyday dress is its ugliness. I say his *everyday* costume, because, when on pleasure he is bent, he may wear pretty much what he likes; and, as a matter of fact, when footballing, boating, bicycling, cricketing, walking, or otherwise enjoying himself, he does adopt a dress which is both sensible and picturesque. It is only when he wishes to make an impression, when he is on business, or paying a call, or going to worship, or performing some other conventionality, that he considers it absolutely necessary to be particularly inartistic and uncomfortable. Our "Sunday best," our go-to-meeting clothes, are those most open to ridicule, unless it may be our evening dress. Contemplate for a moment a man on his way to worship. He is a walking illustration of the doctrine of Evolution. Were his hat, his coat, or his trousers created? No, they were evolved. His hat,—his top-hat, his chimney-pot, his stove-pipe,—is but the carcass upon which his ancestors were wont to display ribbons and knots, and other gauds. In itself it is both ugly and uncomfortable. In winter it proves a vast roof upon which rain and snow may collect in order to be the better discharged upon the shrinking form beneath, or otherwise it has to be protected by an expensive umbrella. We first buy an expensive hat to protect a too often worthless head, and then we buy an umbrella to protect the hat. In summer it becomes less a roof than an oven, in which the head is slowly baked. Whether off or on it is an encumbrance. When off, the question is what to do *with* it; when on, the question is how to do *without* it. And yet there is nothing so absolutely a symbol of civilisation as the top-hat,—a fact which furnishes some food for reflection to the philosopher.

The coat has several of what, I believe, are called "rudimentary organs." Just as in the human skeleton the few useless end bones of the spine are held by science to prove that man once had a tail, so the buttons at the back of a man's coat have their tale. Few people know why they invariably appear. I once asked a fashionable tailor what was their use. He replied, "to mark the waist." They are often put too low down to serve this purpose; but why should a man want his waist marked? And, if he wants it marked in one coat, why not in another? As a matter of fact, the only reason for the existence of these two buttons is that they are a survival from the time when men buttoned back the long flaps of their coats in order to walk more freely. We have no flaps now, then why keep the buttons? Another rudimentary organ may be found at the end of the sleeve. There is always a cuff marked, generally by a double row of stitches, which perform no useful service, unless it be to remind us that our grandfathers had facings to their sleeves, and that those little buttons at the end were of real use when the sleeve was tight at the wrist.

Another necessary feature of the coat is the collar. In old times this collar was of some service; it was large, and turned up well in inclement weather; in order to allow of its buttoning, a nick was necessary. But though we hardly ever think of turning up an ordinary coat-collar, and find it of little use if we do, we still preserve it and the nick as a survival. Regarded with the serene eye of art, a Sunday coat is a contemptible article.

But the worst and ugliest feature in modern costume is the trousers. Previously to the beginning of the present century this ungraceful article was unknown. In the far distant past, the Phrygians had worn trousers, but they were loose and of thin material, falling into pleasing folds. But nowhere that I know of, whether on vase or wall, in missal, window, or book, do we find the shape of the leg concealed in the way in which the nineteenth century conceals it. Why is this so? Why are these things hid? Are the calves of the present day leaner than of yore? or is it that we have grown honest enough to despise padding them, and are obliged therefore to hide them away? The exact reasons which led to the introduction of trousers are perhaps hardly worth seeking; they seem, however, to have been evolved at the mere dictate of fashion from the tight trousers and Wellingtons of the early part of the century, these, in their turn, having grown from the knee-breeches and stockings of fifty years earlier. But what is important to bear in mind is that history has no record of a garment at once so simple and so ugly as trousers. We are going clean against all precedent in shrouding our limbs in cloth funnels devoid of graceful shape and incapable of folds. And this departure from ancestral wisdom has no particular advantage to recommend it. Trousers are not economical, inasmuch as they get baggy at the knee long before they are worn out; they are always getting dirty at the ankles. They are not specially adapted either for cold or for wet. On a wet day it is the part from the knee downwards that catches the rain and necessitates changing the whole garment. Indeed, it is the way in which they ignore the knee-joint which renders trousers practically so objectionable. It is at this joint that they drag, and not only spoil their own shape, but inflict a sense of tightness over the whole body by means of the braces.

The mere discarding of trousers, and substituting knickerbockers and stockings, would effect a great reform in male costume, a more striking and salutary change than any other mere detail, except perhaps the abolition of the Top Hat.

It is almost a waste of breath to declaim against trousers. Their hideousness is so generally admitted. Sculptors and painters have found them quite intractable, and resorted in despair to clothing men of the nineteenth century in Roman drapery. Examine what record of costume you like, and you will always find the shape of the lower part of the leg either displayed, or clothed with an interesting boot, until you come to this century. Turn over the pages of *Punch*, and you cannot fail to be struck with the superiority of knickerbockers over trousers from a picturesque point of view; while, for comfort and utility, they are equally to be preferred.

This substitution of knickerbockers or knee-breeches for trousers is one of the pressing reforms of the day. The change is so simple and yet so effectual. The next is the total disuse of the chimney-pot hat, and the more frequent use of soft material as a head covering. A "wide-awake" or "billy-cock" hat has capabilities, while the "Tam-o'-Shanter" is an excellent article ready to the head. For ladies, too, the "Tam-o'-Shanter" is extremely picturesque; while broad-brimmed felt hats, sealskin hats, straw bonnets of simple shape and decoration, are all worn now and can be defended on principle. Master the principle, and the supply of admissible hats and bonnets will quickly increase. If we never wore anything

† A paper by Mr. J. A. Gotch, read before the Architectural Association on the 19th ult. See p. 630, *ante*.

which could not be defended on principle, we should be much more artistically dressed, and should have to lay aside a good many garments.

For winter-wear, hoods of various shapes would be found very comfortable, and would add greatly to the picturesqueness of our costume.

Turning to the improvements possible in coats, I am not prepared to condemn the present costume in the wholesale way in which trousers justly suffer. The present arrangement of coat and waistcoat is convenient, if rather ludicrous. We might well dispense with tail pockets and those rudimentary buttons. Let the coat be cut according to the figure rather than according to the cloth, but do not forget that inside pockets are essential, and that too many buttons prevent easy access to them by the wearer, while strangers who desire surreptitious access will scarcely be deterred by an extra button. The sleeves might with advantage be cut to fit the fore-arm more closely, and the collar might with advantage be altered in shape; this would undoubtedly affect the disposition of the shirt. If the coat-sleeves were tight and the collar buttoned high, there would be no necessity, scarcely a possibility, of starched shirt front and cuffs; consequently no necessity for a shirt at all. What then? Is a linen shirt a *sine quâ non*? Not at all. At present its only use lies in the collar, cuffs, and shirt-front appearing; do away with the shirt-front and cuffs and you may then discard the shirt, only you must wear a thicker jersey. Suppose we adopted a regular seaman's jersey. Its collar might appear above the coat, its cuffs below the sleeves; let it be any colour you like, white or otherwise. Such a costume would certainly be more simple and artistic, and as for its oddity, that is a mere matter of custom. We could then do without a waistcoat; the watch and other small articles might be carried in a band round the waist, the coat worn usually buttoned up, but if it were left open it would not display the same kind of *dishabille* as now; while a necktie would be optional, according to the cut of the jersey collar.

If it were thought desirable to ornament the coat it might well be done in the manner already indicated, by making the necessary turning-in of the edges ornamental. That was the system which the Greeks adopted. They ornamented the edges of their garments with a running pattern, and then according to the way in which the garment was worn this pattern varied in effect. We might adopt the same principle, though its application would be different.

For summer, a very practical and useful feature might be introduced, by simply having short sleeves to the coat, and showing the jersey down to the wrist; for in summer, as every one knows, thick, flapping sleeves are a great inconvenience.

But these suggestions are, perhaps, too utopian, and their adoption would, after all, become apparent only on a close inspection. The general outline would not be affected by them to any great degree; therefore if we must wait for them, let us take comfort from the thought that there is not the same pressing necessity for them as there is for the adoption of more beautiful leg-gear. Our coats are not so ugly as our trousers. If the coat fits well, and buttons up high, no great harm will be done. Open shirt-fronts for general wear are both inelegant and unhealthy. What is the good of wearing an open front, in order to put a chest-protector underneath it? A little care bestowed upon the collar and necktie will well repay the trouble, for that is the focus of male costume,—the place where the eye naturally lights in conversation, and a small piece of bright colour is very "precious" in these days of sombre hues.

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But more important than the covering for the hand is that for the foot.

The boot is not at present a satisfactory article as regards appearances, though it answers its purposes well enough. It is easy to put on and off, and keeps out the weather, but its lines are not graceful; the leather is generally too stiff, and refuses to go into delicate wrinkles. This general stiffness has another serious drawback, namely, that it takes a good deal of time for the boot to become fitted to the foot, and during that operation the foot naturally suffers. If boots were made of more pliant material this difficulty would be obviated. Whether they would then be equally weatherproof I must leave to professional judgment. One thing is beyond dispute, that to distort the foot in obedience to fashion is contemptible folly. To wear boots that are too small, in the vain idea that little feet are beautiful, to cramp and crush the toes into a pointed boot because some one else does so, are marks of a feeble intellect, and show a plentiful lack of artistic instinct. The beauty of a foot or a hand does not lie in its size, but in its shape. The size varies roughly with the stature. A large person will necessarily, unless deformed, have a larger hand and a larger foot than a small person, and for that large person to cram his extremities into coverings too small for them indicates that his mind has not grown apace with his body (I use the masculine pronoun here merely for the sake of convenience—difference of sex makes little difference in folly).

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Let us not despise costume. If we ourselves are indifferent to it, other people are not; and we dress as much for others as for ourselves. This advice is, of course, addressed to men, for no one supposes that ladies despise costume. I do not ask them to spend more time on their dresses than they do now. Far from it, but what I do ask is that the time should be better employed. Do not regard fashion as a god to be worshipped, but as a friend to be consulted. Master the principles of art in costume, and work them out for yourselves, taking hints from the prevailing fashion, if suitable to your particular characteristics. Avoid all kind of shams. It is difficult to say which are worse, shams which do deceive, or shams which do not; the latter are, perhaps, the more contemptible. Aim at simplicity and quiet good taste, and bear in mind that no great revolution is required to make our present costume quite pleasing. In ladies' dress the chief *desiderata* are greater simplicity and intelligibility in the folds, and a determined opposition to puerile decoration. In men's dress the chimney-pot and the trousers are the principal eyesores. For the rest, the more we study the subject the more improvements we shall see, and the easier we shall find it to make them. Let us work on the materials at hand, and not alarm every one by changes which would seem fantastic. By always selecting the higher types, and steadily discouraging the lower, we shall gradually evolve a logical and beautiful costume, but this cannot be done without an intelligent knowledge of the subject.

Wholesale revivals are to be shunned. If a particular style is dead, whether in architecture or any other art, the probability is that it was no longer deserving of life; and this wearing of stray garments fished up out of the Dead Sea of the Past is little else than affectation. We have to recognise the circumstances in which we live, and to adapt ourselves to them, at the same time recognising that history contains an invaluable store of hints for those who know how to use them. These attempts to revive Queen Anne costume, and the ancient Greek costume, as was actually done by a band of *dilettanti* in London, are very amusing and interesting as a pastime, but as serious efforts towards reforming our dress they are even worse than useless, because they throw an air of irresponsible affectation over the whole subject.

Perhaps the most striking feature about modern dress as a whole is its democratic tendency. Caste in costume has disappeared; the lord now dresses like the squire; the millionaire like his clerk. This is one of those tendencies of the age with which I should be the last to quarrel. What is wanted is that men and women should be judged by their innate worth, on their own merits, and not by the accident of birth, station, or wealth. And so with costume. Our dress should no longer be at the mercy of the fluctuating standard of unintelligent and capricious fashion, but should render itself worthy of being judged by the eternal principles of true art.

ABBEY PARK, LEICESTER.

THIS new public park was opened on Monday last by the Prince and Princess of Wales, in brilliant weather, and amid profuse demonstrations of popular rejoicing and loyalty.

For some years past the Corporation has been engaged in carrying out a work of great magnitude and importance, having for its object the prevention of the floods from which the town has of late years suffered so severely. These works have included the widening, strengthening, and deepening the channel of the river Soar for about a mile; the construction of extensive massive weirs and locks, and the lowering of the bed of the canal 3 ft. 6 in., so as to provide a free outfall for two tributaries of the Soar, discharging immense quantities of storm water. A handsome bridge, of three spans, has been thrown across the widened river at the Abbey, and another over the canal. These and other engineering works connected with the flood scheme have been carried out by Messrs. Benton & Woodiwiss, of Derby, under the direction of Mr. F. Griffith, the engineer to the Corporation, and are now nearly complete.

With this important contribution to the sanitary works of the borough, the Corporation have, with wise forethought and liberality, combined the scarcely less needed work of providing a place of healthful and elevating recreation for the dense masses of the working class population which the increasing prosperity of the town has gathered in its manufacturing quarters. A site, about seventy acres in extent, has been purchased, and laid out as a park and recreation-ground. The site is well chosen. It is situated on the north side of the river Soar, commanding a view of the ruins of Leicester Abbey, the mouldering stone walls of whose demesne border the opposite bank of the stream, and its connexion with "the last scene of all, that ends the strange eventful history" of Wolsey's life, is enough to render it interesting to every Englishman; for within sight is the "little earth" the old man came to crave wherein to lay his bones.

The Park has been designed by Messrs. Barron & Son, of Elvaston, near Derby, the engineering works being carried out by Mr. Griffith, the Engineer to the Corporation. The excavated earth resulting from the flood works has been utilised to form high banks and mounds, and to give to what was a level swamp a pleasing broken and undulating surface. A grand drive sweeps from the principal entrance quite round the park. In the centre of the grounds, and at the head of a large artificial lake, is a high mound surmounted by large

perfect notice of him, I cannot do better than quote the words of a letter which I recently received from Mr. Macvicar Anderson, the accomplished secretary of the Royal Institute of British Architects. He says:—"It is rarely one meets with a character so independent [as was that of Mr. Burn]. His *esprit de corps* was remarkable, and I know many notable instances of his helping others to large works which he might have kept to himself. He invariably stood up manfully for his professional brethren, and since his death I have been struck with the frequency that the remark has been made to me, by men now in a good position, of how much they owed to his kindness and independence. He was a man of exceptionally vigorous character, and his influence among his clients, who were mostly members of the aristocracy, as well as amongst the leading men of the day in society, was remarkable."

You will agree with me that a little time spent in considering the career of Mr. Burn is well spent. In his manliness and honesty and independence, coupled with his apparent entire want of professional jealousy which so often disfigures the characters of professional men, he was a model to all young architects.

After the career of Mr. Burn it is natural to proceed with the story of the life of Mr. Bryce. After Mr. Burn left for London in 1844, there is no man in Scotland who will compare for a moment in the extent and importance of his practice with Mr. D. Bryce. The pre-eminence he retained till his death in 1876. He was born in the year 1803 in Greenside, Edinburgh, and was educated at the High School. His father was a builder here, who united with his building a little architecture. David was apprenticed in his office, and there acquired that technical skill in drawing for which he was distinguished in after years. While yet a young man he became assistant to Mr. Burn in succession to his brother William, who had previously been principal assistant, and who had died early in life. In course of time Mr. Bryce was taken into partnership by Mr. Burn, and this connexion subsisted even after the year 1844, when Mr. Burn removed to London. But Mr. Bryce thereafter was regarded as the head of the firm here. As I have mentioned in Mr. Burn's life, it seems to have been about the year 1850, when the tie was ultimately dissolved. The vantage ground from which he started as the partner of Mr. Burn gave Mr. Bryce great opportunities even at an early stage of his career. We owe to him, early in his life, some of the noblest of our public buildings. Among his earliest works were the ornate British Linen Company's Bank, in St. Andrew-square; the Western Bank, also in St. Andrew-square, now the Scottish Widows' Fund Building, which has seemed to me always one of the most beautiful frontages we have in Edinburgh.

Such buildings as these two soon brought name and fame to the architect; and there shortly followed the Clydesdale Bank at the corner of George-street and Hanover-street, the Subscription Library in George-street, the North British Insurance Offices in Princes-street, and many others. Latterly, we are indebted to the genius of Mr. Bryce for some of the finest modern buildings in this city, Fettes College, the Bank of Scotland, the new Sheriff Court House, and the new Royal Infirmary. These buildings form of themselves a splendid monument to any architect. In Fettes College and the Infirmary there is clear indication of a love for the French Château on the part of the architect. In the Sheriff Court House and the Bank there is seen the masterly command of classic art to suit the requirements of modern days which few but Mr. Bryce have been able to exhibit.

While great in his public works, Mr. Bryce was not less great,—greater, indeed,—in his domestic buildings. It may be said with all truth that he revived the Scottish Baronial style. He has been by far the greatest master in that department. When we compare the buildings designed in this style, applying the beautiful and quaint features of our national art to modern building with the baronial edifices of Elliot and Graham, and even of Burn, with those prepared by Bryce, the contrast is startling. Previous men put on here and there a Scottish feature, which sometimes was and sometimes was not appropriate. Bryce's Scottish Baronial seemed natural to him,—it was his native Doric.

Notable illustrations of this are Cortachy, Forfarshire, the seat of the Earl of Airlie; Ballikinran, the seat of Mr. Archibald Orr Ewing; Castle Milk, near Lockerbie, for Mr. R. Jardine, M.P.; and Kimmerghame, the seat of Mr. A. Campbell-Swinton.

Mr. Bryce's professional life seems to have passed through three phases. We have first the severely Classical style, which might be naturally expected from a pupil and partner of Burn, in the United Presbyterian church in Lothian-road, which, I understand, was his first commission, and the Widows' Fund and British Linen Co.'s Bank; then we have the Scottish Baronial of Cortachy and Ballikinran. Latterly Mr. Bryce seemed to have been infected with a strong love for French art, of which we have a very fine specimen in Fettes College, and a more plain example in the Royal Infirmary. He designed in all these styles apparently simultaneously, and in all with marked success. I know of no architect to compare with Mr. Bryce in the success which attended his efforts in almost all styles. Other men distinguished themselves in one walk, in one style. He gloried and was successful in many styles. The only exception which might be taken to this statement is in Gothic art. I am not aware that he has left his mark here as on the other departments to which I have referred.

After enjoying the proud position of being the foremost architect of Scotland for a period of twenty-five or thirty years, he died in the year 1876, in the seventy-third year of his age.

Apart from his own peculiar studies, Mr. Bryce was a man of wide general attainments. Although somewhat rough in manner, he had a kindly heart, and he was universally esteemed alike by his servants and his employers.*

ART IN COSTUME.†

LET us now turn a critical eye upon male costume. One of the most obvious things about a man's everyday dress is its ugliness. I say his *everyday* costume, because, when on pleasure he is bent, he may wear pretty much what he likes; and, as a matter of fact, when footballing, boating, bicycling, cricketing, walking, or otherwise enjoying himself, he does adopt a dress which is both sensible and picturesque. It is only when he wishes to make an impression, when he is on business, or paying a call, or going to worship, or performing some other conventionality, that he considers it absolutely necessary to be particularly inartistic and uncomfortable. Our "Sunday best," our go-to-meeting clothes, are those most open to ridicule, unless it may be our evening dress. Contemplate for a moment a man on his way to worship. He is a walking illustration of the doctrine of Evolution. Were his hat, his coat, or his trousers created? No, they were evolved. His hat,—his top-hat, his chimney-pot, his stove-pipe,—is but the carcass upon which his ancestors were wont to display ribbons and knots, and other gauds. In itself it is both ugly and uncomfortable. In winter it proves a vast roof upon which rain and snow may collect in order to be the better discharged upon the shrinking form beneath, or otherwise it has to be protected by an expensive umbrella. We first buy an expensive hat to protect a too often worthless head, and then we buy an umbrella to protect the hat. In summer it becomes less a roof than an oven, in which the head is slowly baked. Whether off or on it is an encumbrance. When off, the question is what to do *with* it; when on, the question is how to do *without* it. And yet there is nothing so absolutely a symbol of civilisation as the top-hat,—a fact which furnishes some food for reflection to the philosopher.

The coat has several of what, I believe, are called "rudimentary organs." Just as in the human skeleton the few useless end bones of the spine are held by science to prove that man once had a tail, so the buttons at the back of a man's coat have their tale. Few people know why they invariably appear. I once asked a fashionable tailor what was their use. He replied, "to mark the waist." They are often put too low down to serve this purpose; but why should a man want his waist marked? And, if he wants it marked in one coat, why not in another? As a matter of fact, the only reason for the existence of these two buttons is that they are a survival from the time when men buttoned back the long flaps of their coats in order to walk more freely. We have no flaps now, then why keep the buttons? Another rudimentary organ may be found at the end of the sleeve. There is always a cuff marked, generally by a double row of stitches, which perform no useful service, unless it be to remind us that our grandfathers had facings to their sleeves, and that those little buttons at the end were of real use when the sleeve was tight at the wrist.

Another necessary feature of the coat is the collar. In old times this collar was of some service; it was large, and turned up well in inclement weather; in order to allow of its buttoning, a nick was necessary. But though we hardly ever think of turning up an ordinary coat-collar, and find it of little use if we do, we still preserve it and the nick as a survival. Regarded with the serene eye of art, a Sunday coat is a contemptible article.

But the worst and ugliest feature in modern costume is the trousers. Previously to the beginning of the present century this ungraceful article was unknown. In the far distant past, the Phrygians had worn trousers, but they were loose and of thin material, falling into pleasing folds. But nowhere that I know of, whether on vase or wall, in missal, window, or book, do we find the shape of the leg concealed in the way in which the nineteenth century conceals it. Why is this so? Why are these things hid? Are the calves of the present day leaner than of yore? or is it that we have grown honest enough to despise padding them, and are obliged therefore to hide them away? The exact reasons which led to the introduction of trousers are perhaps hardly worth seeking; they seem, however, to have been evolved at the mere dictate of fashion from the tight trousers and Wellingtons of the early part of the century, these, in their turn, having grown from the knee-breeches and stockings of fifty years earlier. But what is important to bear in mind is that history has no record of a garment at once so simple and so ugly as trousers. We are going clean against all precedent in shrouding our limbs in cloth funnels devoid of graceful shape and incapable of folds. And this departure from ancestral wisdom has no particular advantage to recommend it. Trousers are not economical, inasmuch as they get baggy at the knee long before they are worn out; they are always getting dirty at the ankles. They are not specially adapted either for cold or for wet. On a wet day it is the part from the knee downwards that catches the rain and necessitates changing the whole garment. Indeed, it is the way in which they ignore the knee-joint which renders trousers practically so objectionable. It is at this joint that they drag, and not only spoil their own shape, but inflict a sense of tightness over the whole body by means of the braces.

The mere discarding of trousers, and substituting knickerbockers and stockings, would effect a great reform in male costume, a more striking and salutary change than any other mere detail, except perhaps the abolition of the Top Hat.

It is almost a waste of breath to declaim against trousers. Their hideousness is so generally admitted. Sculptors and painters have found them quite intractable, and resorted in despair to clothing men of the nineteenth century in Roman drapery. Examine what record of costume you like, and you will always find the shape of the lower part of the leg either displayed, or clothed with an interesting boot, until you come to this century. Turn over the pages of *Punch*, and you cannot fail to be struck with the superiority of knickerbockers over trousers from a picturesque point of view; while, for comfort and utility, they are equally to be preferred.

This substitution of knickerbockers or knee-breeches for trousers is one of the pressing reforms of the day. The change is so simple and yet so effectual. The next is the total disuse of the chimney-pot hat, and the more frequent use of soft material as a head covering. A "wide-awake" or "billy-cock" hat has capabilities, while the "Tam-o'-Shanter" is an excellent article ready to the head. For ladies, too, the "Tam-o'-Shanter" is extremely picturesque; while broad-brimmed felt hats, sealskin hats, straw bonnets of simple shape and decoration, are all worn now and can be defended on principle. Master the principle, and the supply of admissible hats and bonnets will quickly increase. If we never wore anything

* To be continued.

† A paper by Mr. J. A. Gotch, read before the Architectural Association on the 19th ult. See p. 630, *ante*.

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Let us not despise costume. If we ourselves are indifferent to it, other people are not; and we dress as much for others as for ourselves. This advice is, of course, addressed to men, for no one supposes that ladies despise costume. I do not ask them to spend more time on their dresses than they do now. Far from it, but what I do ask is that the time should be better employed. Do not regard fashion as a god to be worshipped, but as a friend to be consulted. Master the principles of art in costume, and work them out for yourselves, taking hints from the prevailing fashion, if suitable to your particular characteristics. Avoid all kind of shams. It is difficult to say which are worse, shams which do deceive, or shams which do not; the latter are, perhaps, the more contemptible. Aim at simplicity and quiet good taste, and bear in mind that no great revolution is required to make our present costume quite pleasing. In ladies' dress the chief *desiderata* are greater simplicity and intelligibility in the folds, and a determined opposition to puerile decoration. In men's dress the chimney-pot and the trousers are the principal eyesores. For the rest, the more we study the subject the more improvements we shall see, and the easier we shall find it to make them. Let us work on the materials at hand, and not alarm every one by changes which would seem fantastic. By always selecting the higher types, and steadily discouraging the lower, we shall gradually evolve a logical and beautiful costume, but this cannot be done without an intelligent knowledge of the subject.

Wholesale revivals are to be shunned. If a particular style is dead, whether in architecture or any other art, the probability is that it was no longer deserving of life; and this wearing of stray garments fished up out of the Dead Sea of the Past is little else than affectation. We have to recognise the circumstances in which we live, and to adapt ourselves to them, at the same time recognising that history contains an invaluable store of hints for those who know how to use them. These attempts to revive Queen Anne costume, and the ancient Greek costume, as was actually done by a band of *dilettanti* in London, are very amusing and interesting as a pastime, but as serious efforts towards reforming our dress they are even worse than useless, because they throw an air of irresponsible affectation over the whole subject.

Perhaps the most striking feature about modern dress as a whole is its democratic tendency. Caste in costume has disappeared; the lord now dresses like the squire; the millionaire like his clerk. This is one of those tendencies of the age with which I should be the last to quarrel. What is wanted is that men and women should be judged by their innate worth, on their own merits, and not by the accident of birth, station, or wealth. And so with costume. Our dress should no longer be at the mercy of the fluctuating standard of unintelligent and capricious fashion, but should render itself worthy of being judged by the eternal principles of true art.

ABBEY PARK, LEICESTER.

THIS new public park was opened on Monday last by the Prince and Princess of Wales, in brilliant weather, and amid profuse demonstrations of popular rejoicing and loyalty.

For some years past the Corporation has been engaged in carrying out a work of great magnitude and importance, having for its object the prevention of the floods from which the town has of late years suffered so severely. These works have included the widening, strengthening, and deepening the channel of the river Soar for about a mile; the construction of extensive massive weirs and locks, and the lowering of the bed of the canal 3 ft. 6 in., so as to provide a free outfall for two tributaries of the Soar, discharging immense quantities of storm water. A handsome bridge, of three spans, has been thrown across the widened river at the Abbey, and another over the canal. These and other engineering works connected with the flood scheme have been carried out by Messrs. Benton & Woodiwiss, of Derby, under the direction of Mr. F. Griffith, the engineer to the Corporation, and are now nearly complete.

With this important contribution to the sanitary works of the borough, the Corporation have, with wise forethought and liberality, combined the scarcely less needed work of providing a place of healthful and elevating recreation for the dense masses of the working class population which the increasing prosperity of the town has gathered in its manufacturing quarters. A site, about seventy acres in extent, has been purchased, and laid out as a park and recreation-ground. The site is well chosen. It is situated on the north side of the river Soar, commanding a view of the ruins of Leicester Abbey, the mouldering stone walls of whose demesne border the opposite bank of the stream, and its connexion with "the last scene of all, that ends the strange eventful history" of Wolsey's life, is enough to render it interesting to every Englishman; for within sight is the "little earth" the old man came to crave wherein to lay his bones.

The Park has been designed by Messrs. Barron & Son, of Elvaston, near Derby, the engineering works being carried out by Mr. Griffith, the Engineer to the Corporation. The excavated earth resulting from the flood works has been utilised to form high banks and mounds, and to give to what was a level swamp a pleasing broken and undulating surface. A grand drive sweeps from the principal entrance quite round the park. In the centre of the grounds, and at the head of a large artificial lake, is a high mound surmounted by large

blocks of rockwork. At the other end of the lake is a refreshment pavilion, surrounded with flower-beds and lawns for croquet, tennis, bowling, &c. Upwards of 33,000 trees, many of them of the choicest kinds, have been planted, besides thousands of shrubs.

The architectural work has been entrusted to Mr. Tait, architect, of Leicester. The two lodges at the principal entrance, as well as the entrance gates and piers, are in the Tudor style of architecture. The piers are embattled, pinnacled, and crocketed; the central one bearing a bronze tablet, commemorating the opening of the park. The materials are local red sand stocks, resembling in colour and size the old bricks of the Tudor period, with dressings of Derbyshire stone. Some of the gables and bay windows of the lodges are timber-framed, with carved barge-boards and enriched mouldings in dark-coloured wood, and the roofs are covered with red tiles. The ridges are covered with a lead ridge, the *motif* of whose design is the crest of the borough. The lodge at the western entrance is of a more rustic type of the same style of architecture.

The pavilion is also in the Tudor style. It consists of a spacious hall, surrounded on three sides by a verandah, supported on solid moulded oak posts and arches, and roofed with red tiles. The hall is lighted from glazed running doors, opening into the verandah, and also by clear-story windows, glazed with tinted glass. The walls are panelled throughout, and at each end is a handsome stone chimney-front. At one side of each fireplace is an oriel, commanding pretty views of the park. At the rear of the pavilion hall is a dwelling-house, for a curator. The total cost of the park will be about 50,000*l.*

It may be mentioned that the present chairman of the committee under whose direction the great undertaking, of which the park scheme forms a part, has been carried out, Councillor Underwood, as well as Alderman Chambers, the present Mayor, and Alderman Winterton, the High Sheriff of the county, his predecessors in the office, are all more or less directly connected with the building trade.

ST. SAVIOUR'S CHURCH, SOUTHWARK, AS A CATHEDRAL.

AT a diocesan conference, which was last week held in St. Saviour's Church, Southwark, the Bishop of the diocese (Rochester) presided, and in the course of the proceedings adverted to the contemplated conversion of the church into a cathedral. Alluding to a Bill now before Parliament for abolishing the present objectionable way of raising the salary of the chaplain of St. Saviour's, and vesting the patronage with the bishop, his lordship said that when that Bill became law, he should, with as little delay as possible, consider the restoration of the fabric, in the firm belief that the spiritual interests of the surrounding population would be vitally stirred and helped when that church, in its pristine beauty, became the Cathedral of South London.

At the same conference, a scheme was also agreed upon, involving the formation of a fund to be called "The Bishop of Rochester's Ten Churches Fund," with the object of raising not less than 50,000*l.* towards the erection of at least ten new churches in South and South-east London.

THE PERGAMEAN RELICS.

THE great statue of Athene, from the altar of Pergamon, has now been placed in the so-called Assyrian Room at the Berlin Museum. This work is a copy or imitation of the celebrated statue of Athene, by Phidias, which, in ancient times, was at Athens. The Pergamean imitation now in the German capital is of heroic size, standing 8 ft. 6 in. high, without the head, which has, unfortunately, not been found. Otherwise the work is in a very good state of preservation. The goddess appears clothed in a garment which has many folds, and is fastened over the hip, but in the upper part of the body does not lie tight or close to it. Over this, on her shoulders, the goddess wears a scaly jacket, reaching half over the bosom. On this the separate scales are excellently preserved, and show exquisite workmanship. The garment covering the lower portion of the body lies pretty evenly all round, and reaches in rich folds to the ground, only the left leg, which is slightly advanced, being indicated beneath the covering. A few portions of the statue near the feet have been broken away, but the socle capital is very well preserved. This capital shows in relief festooned garlands, and between them rosettes, and eagles with outspread wings. This work, like the Apollo and other groups belonging to the great altar which have already been carefully cleaned and put together in their original form, is an object of great interest to the visitors to the Berlin Museum.

PRINCIPAL STAIRCASE, THE TOWN-HALL BUDAPEST.

THE second capital of the Austrian Empire shows the invigorating effects of a new constitutional era, especially in the activity with which building operations are carried on. Architecture, in conjunction with sculpture and painting, is beginning to play a most important *rôle*, the development of which is steadily proceeding. During the last decade, royal, government, municipal, and private buildings, remarkable either for their usefulness or splendour, have been springing up, which have added considerably to the number of existing edifices with a claim to excellence. A numerous body of architects, who have mostly received their training abroad, have taken up their residence in Budapest, and are assisting in converting it into a modern town. We have, before now, illustrated several of the buildings erected here, and in our present number we publish a view of the staircase of the new town-hall, a building which was some few years ago completed,—a suggestive addition, moreover, to the series of staircases we have from time to time given.

The city owns property of a value of 45,000,000 florins, and has an annual income of 6,000,000 florins, a great portion of which has been devoted to the erection of public buildings. The construction of the new town-hall was temporarily interrupted on account of the changes which were made in the original plans. The basement had already been completed in the Gothic style, when the municipality, deeming the expense attached to that style too great, desired the architect to adopt the less expensive one of the Renaissance. The latter, Professor Emerich Steindl, chose an early style of Renaissance, so as to bring the whole building fairly in harmony with the Gothic portion, the basement, already constructed.

Both the street front and the courtyard façades of the Townhall are of brick, with stone mouldings and glazed coloured terra-cottas. The edifice is the first building in which the latter material was employed in Budapest. In the centre of the principal portion, and running through the second and third stories, is the council-chamber, a room 67 ft. 3 in. long, 48 ft. wide, and 42 ft. 3 in. high to the coffered ceiling. Half-way up a gallery runs round the hall, which receives its light from five windows on each side. The decoration is strictly architectonic, the material real marble. This decoration also includes two marble chimney-pieces and six frescoes at the ends of the room, containing allegorical subjects, painted by Lotz. All the fittings are of oak, and the doors of walnut, with bronze ornaments. Besides seats for the president, the magistracy, and the press, there are 306 seats for the representatives. The chamber is entered by the assembly-room. Communication between the various stories is effected by a five-flight principal staircase of iron, a similar staircase of three flights, and a spiral staircase. The principal staircase, which we illustrate, is from the design of the architect Von Detl. The stairs are of Karst marble. The ceiling is adorned with bays. The staircase is 45 ft. wide; the stairs are 9 ft. in width. The most remarkable feature is the transition from the stone pillars to iron in the double lobby of the ground-story. A model of the staircase was shown at the Vienna International Exhibition and is now in the Gewerbe-Museum of Budapest. The total cost of the building was not quite 800,000 florins (80,000*l.*). It is to be regretted that the edifice has been placed in a narrow street, some distance from the centre of the city.

Slaughterhouse Reform.—At the last meeting of the Council of the Society for the Reform of Slaughterhouses, a communication was read from Mr. Kennett, of Petersfield, intimating that he would give 200 guineas to the society towards the construction of a model abattoir, if in the course of two months four other persons would contribute the same amount.

SHORING USED AT THE ROYAL ALHAMBRA THEATRE.

IN giving some account, at the close of last year, of the works and decorations then carried out at "The Alhambra," Leicester-square,* we promised some further information.

We illustrate this week, therefore, the shoring which was used at the Alhambra Theatre to support the dome during the removal of two of its main supports, for the purpose of widening the proscenium.

The dead weight borne on the top of each of the columns to be removed was about 35 tons, and that not brought on to it by various girders, &c., each of which might have been separately shored, but concentrated upon it by the inner curb of the curved principal of the dome. Added to this was the necessity for providing against the thrust of the dome on the outer walls when the tie at the head of the column was released,—a difficulty further enhanced by the fact, only discoverable after the beginning of the works, that the two columns were leaning over towards the centre of the building, through a slight failure in the dome, with the result that the foot of the principal had been pulled nearly out of the walls on which it rested at one end.

A gridiron of rolled joists, all strongly strapped together, was formed at the base of the principal at B B, surrounding the head of the column; at one end this was tightly pinned into the wall, and at the other carried out sufficiently far to be supported by timber shoring built up from the basement. When all this was steadied on shores of timber balks, and further strengthened by being tied back by long drum-iron tie-rods, carried through and nutted to the main walls, it was found that long lugs at the heads of the columns were embedded in the timber of the curb. It was, therefore, deemed impossible to remove the upper length of the column as intended, and other means had to be devised. The column, which in itself is 53 ft. 6 in. high, stood on a granite base raised on a brick pier in the basement, as shown at A A. The angles of this brick pier immediately below the base were cut away, and two rolled iron joists inserted, and beneath the ends of these were placed two of the powerful jacks which were used when the roof of the North-Western Railway Station was raised. The weight being brought on to these joists and jacks, the rest of the brickwork was cut away, the jacks were lowered, and the column, by its own dead weight, pulled itself free, and left the dome standing rigid and safe on the top of its temporary shoring, much to the satisfaction of all engaged in the operation.

The remainder of the works was comparatively easy. Heavy cast-iron stancheons were raised in a line with the old columns, and a riveted girder built up over them in position, on a staging erected above the proscenium. These works, which were carried on at the same time as the redecoration of the building, were completed in the course of a few days; and great praise is due to the contractor, Mr. Brass, of Old-street, and his indefatigable foreman, Mr. Jones, for the successful way in which they performed this troublesome operation.

Although the proscenium has been widened, the full benefit of it is not yet visible to the audience. The old and incongruous proscenium still remains, want of time having prevented its reconstruction; but it is intended shortly to substitute another, as designed by the architects, in accordance with the style of the house.

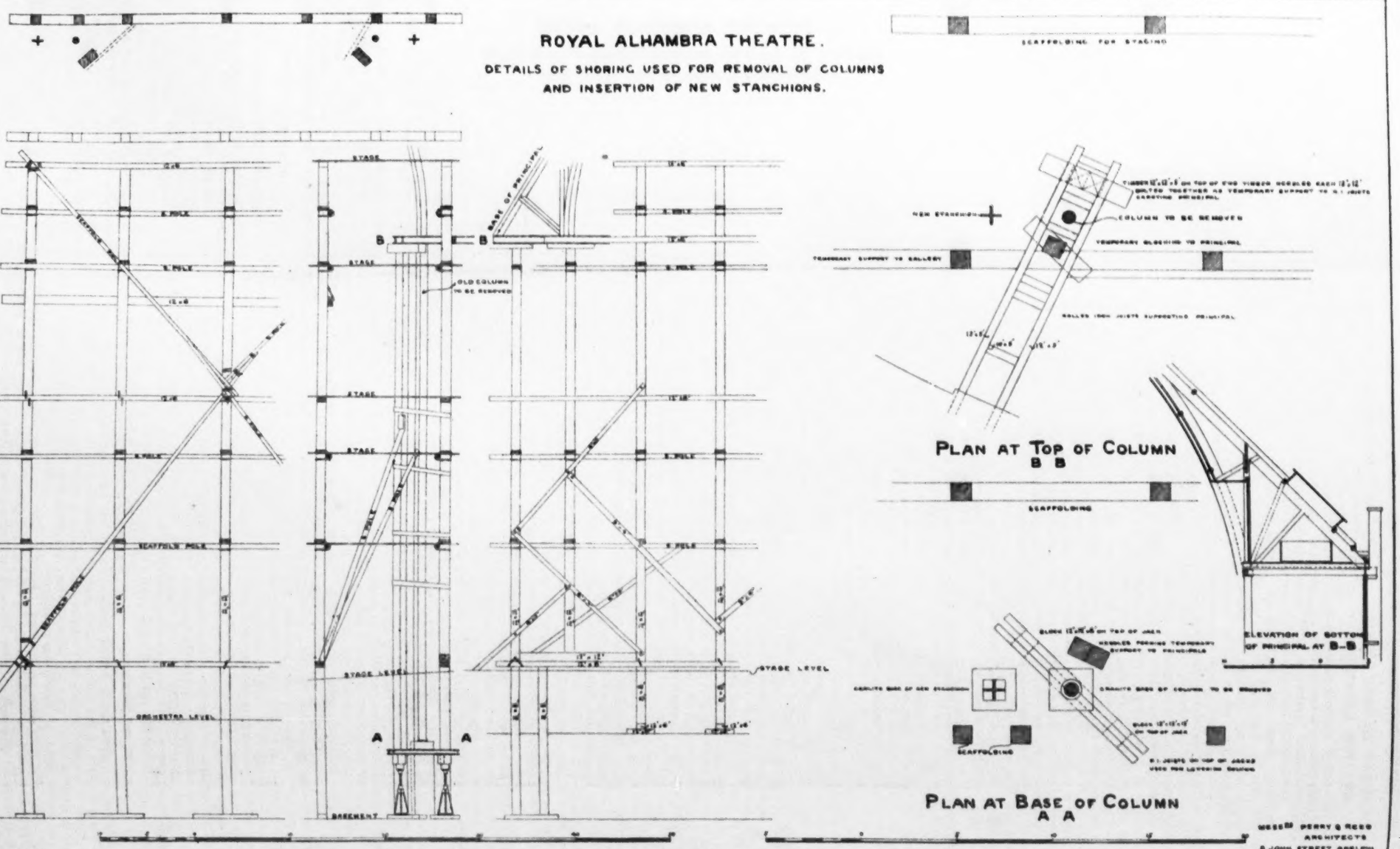
We may mention, though most of our readers will be aware of the fact, that the dome of the Alhambra is a remarkable and much-admired specimen of timber construction, and was designed by Professor T. Hayter Lewis. The architects for the new works were Messrs. Perry & Reed, of the Adelphi.

Local Board Architects.—A professional man writes,—Allow me to make a remark in the interests of our profession. I would call attention to the very unfair position in which architects are placed by Local Board officials who practise as architects also, they being the actual custodians of plans and elevations deposited with the Board for all works in their district, and which they can copy or use at will even in opposition to the architects who were compelled to send them in.

* Vol. xli. (1881), p. 739.

ROYAL ALHAMBRA THEATRE.

DETAILS OF SHORING USED FOR REMOVAL OF COLUMNS AND INSERTION OF NEW STANCHIONS.



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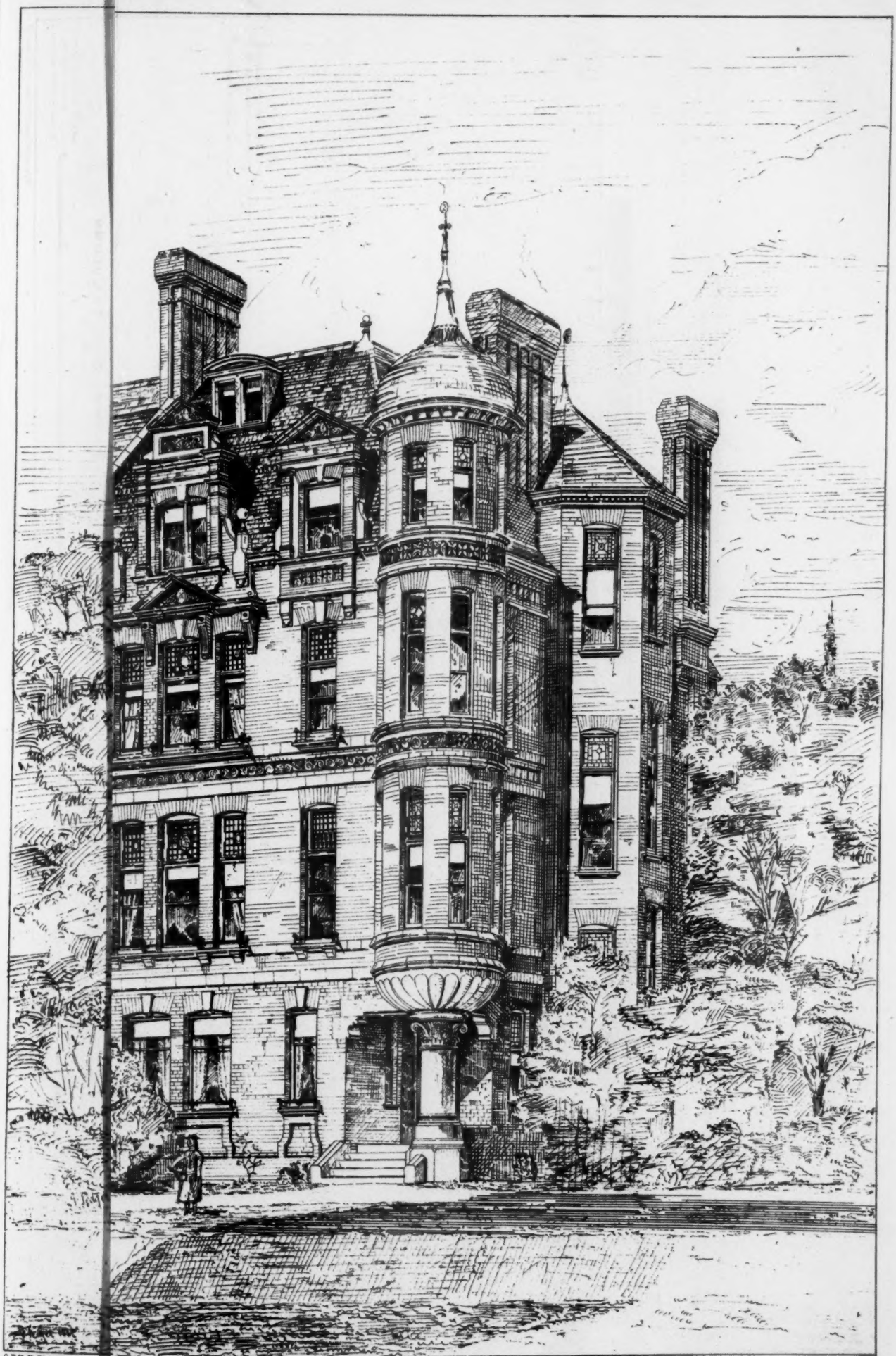

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S. Legg, Architect.

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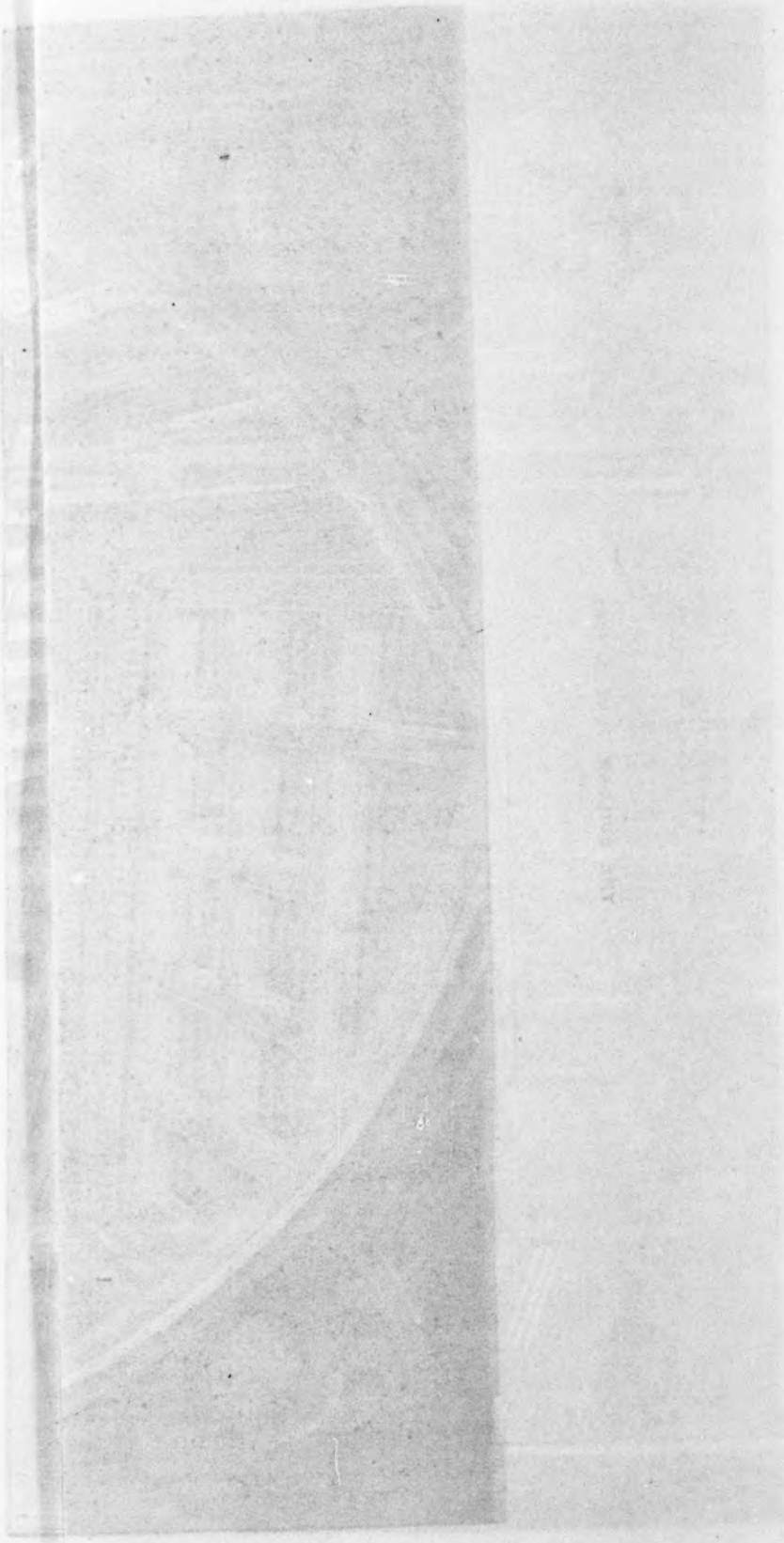
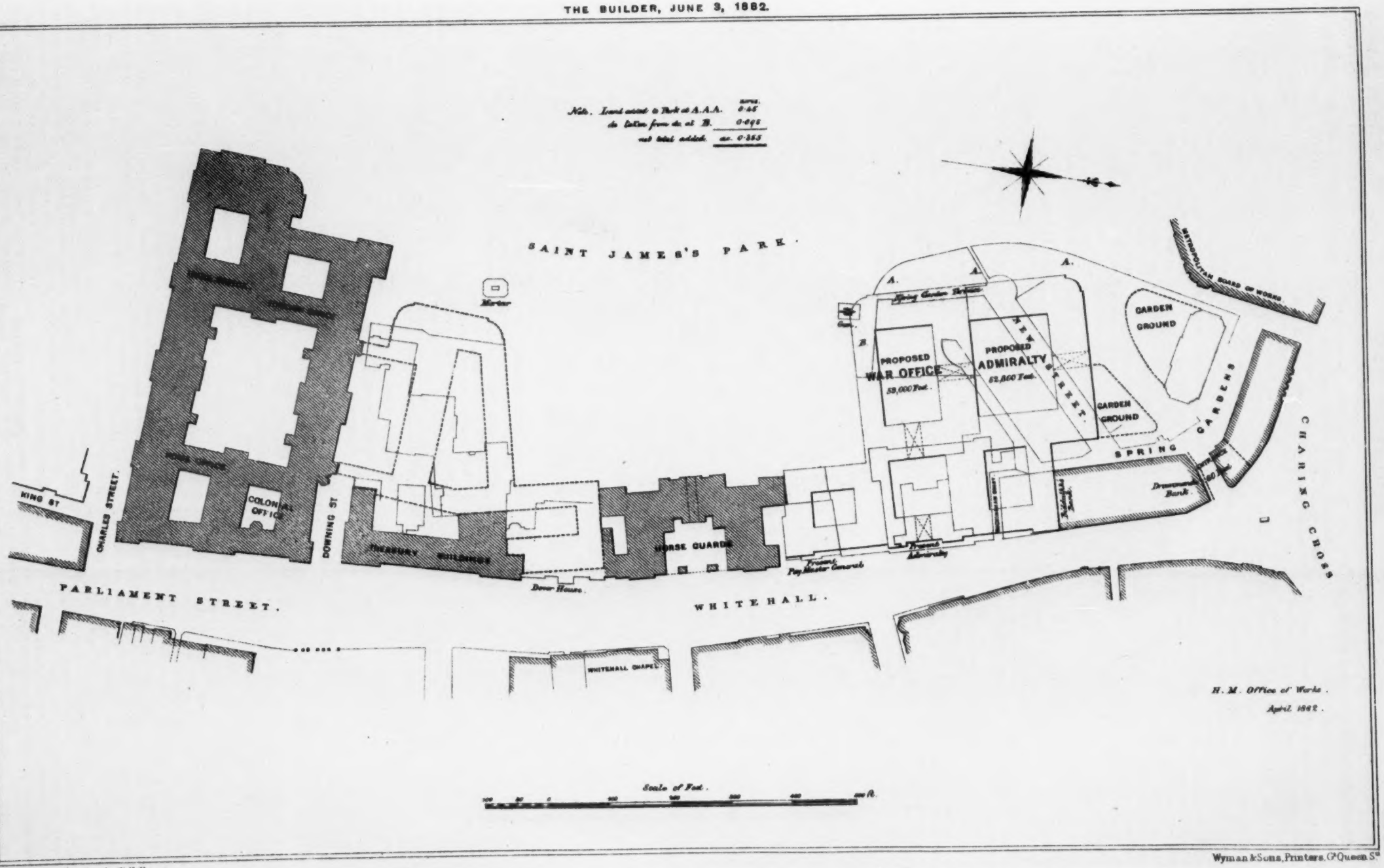
VILLA RESIDENCES, WELL WALK, HAMPSTEAD.—MR. HENRY S. LEGG, ARCHITECT.

PRINCIPAL STAIRCASE, TOWN HALL, BUDAPEST.—HERR VOS DETT, ARCHITECT.





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PLAN SHOWING SITE OF PROPOSED GOVERNMENT OFFICES, WHITEHALL AND CHARING CROSS.

VILLA RESIDENCES AT WELL WALK, HAMPSTEAD.

THE view we give of residences at Hampstead represents four houses now erecting, and nearly finished, in the old and almost historic neighbourhood of Well-walk, Hampstead, celebrated for its chalybeate spring, and also as the resort, in his last days, of the poet Keats, whose seat, said to be the same used by himself, is within a few yards of the site of these houses.

The land around this "walk," a good deal of which belongs to the Wells Charity Estate, having become of late valuable, in consequence of the large quantity of building that has been going on in the neighbourhood, and in consequence of its close contiguity to the Heath, now secured for ever to the public as an open space, commands a high ground-rent, and the houses erected upon it are therefore of necessity large.

These four houses, which are erected in pairs, are of red brickwork, a large proportion being of gauged work, the red bricks of which are selected of a different tone or colour, the ganged work being the porches, the strings, the mouldings, the whole of the dormers, &c. Very little stone is used, but where it is used it is the red Mansfield. Polished red granite is introduced in the shafts supporting the circular angle turret, as seen in the view, and to the projecting corbel of the wide bay window. The roofs are covered with brown Broseley tiles. Nearly all the sashes have a portion made ornamentally, and filled with lead-lights.

The whole of the joiners' work of the interior is of pitch-pine, or pitch-pine and red pine combined, and is to be varnished. The entrance-halls, vestibules, and passages are to be ornamentally tiled. The ceilings of all the dining-rooms are divided by pitch-pine mouldings into panels, and the panels filled with diagonal boarding. The cornices also are of wood. The ceilings of the drawing-rooms are a combination of pitch-pine mouldings and plaster-work. Ornamental stone screens divide the entrance-halls from the staircases.

The planning and internal arrangements are dictated partially by the site, the level of which is a hill, rising rapidly from the front to the back, so that the land at the rear is level with what appears in the view to be the first floor; the entrance to each house is therefore off the level of the ground in front, and the principal rooms are on the first floor. With the exception of the entrance-halls and one room, viz., the breakfast-room, the whole of the ground-floor is devoted to the usual domestic offices. On the first floor each house has a large drawing-room, dining-room (with lifts from below), library, and boudoir; and above, on three floors, are the bedrooms, dressing-rooms, bath-rooms, and lavatories.

All four houses differ in their internal arrangements, although they contain much about the same general accommodation.

Special arrangements have been made with regard to the drainage and sanitary arrangements, the main drains of two houses being laid in an arched subway, formed between the two pairs. And a special deep intercepting drain at the back, laid parallel to the back fronts, is put in to take the drainage from the land, which at the rear falls towards the houses, with a view to keep them dry. Irrespective of this, the mode adopted and advised by an eminent architect has been used to keep the back portion of the buildings below the ground dry, viz., by forming a perpendicular layer of asphalte 1¼ in. thick in the thickness of the wall joining the usual horizontal layer or damp course.

In case of gas being used in the principal rooms, each room has a horizontal shaft in the floor above, from the centre of the ceiling, intended for a globe-light to be attached to it; and this leads to a small triangular flue formed at the side of an earthenware smoke-flue, and which, being thus heated, has a current or draught upwards.

The original estimate for the four houses was 15,000*l.*; but this includes fittings of an ornamental character, such as glazed enclosures or closets for china, of which there are are two or three in each house; also wrought-iron conservatories of which there are three altogether.

Mr. Henry S. Legg, of Christ's Hospital, London, is the architect, under whose superintendence the works are being carried out by Messrs. Perry, builders, of Tredegar Works, Bow.

Very few persons are aware of the once famous chalybeate water giving the name to the neighbourhood of these houses, viz., "Well Walk," which well or spring has served the inhabitants of Hampstead for upwards of 200 years, and for which of late the Wells Charity Trustees have erected an ornamental fountain or structure in the Walk. This is of stone, with a polished red granite slab, intended for an inscription, and a grey granite basin at the base to receive the water.

PROPOSED NEW PUBLIC OFFICES, CHARING-CROSS.

BY the courtesy of the Right-Honourable G. J. Shaw-Lefevre, First Commissioner of Works, we have received a copy of the official plan showing the site of the proposed new offices, and have thought it desirable to place it before our readers. As we have already pointed out in an article on the subject,* part of which it may be as well to repeat, the site selected for the purpose is bounded on the east by Whitehall and Charing-cross; on the west by St. James's Park and the passage leading into the park adjoining the offices of the Metropolitan Board of Works; on the north and north-east, by Spring-gardens and the new banking-house recently erected by Messrs. Drummonds, and the banking-house of Messrs. Cocks, Biddulph & Co.; and on the south, by the Horse Guards and the Horse Guards' parade. It is also proposed to take the houses Nos. 53 and 54, Charing-cross, apparently for the purpose of affording a better entrance into Spring-gardens, and the house, No. 24, Spring-gardens, adjoining. The greater part of Spring-gardens, together with the passage therefrom into St. James's Park, and the small inclosed plantation upon each side of this passage, will also be absorbed, and is apparently intended to be built upon.

It will thus be seen that the site includes the Paymaster-General's office, the residence of the First Lord of the Admiralty adjoining to the north, the whole of the Admiralty buildings and the garden in the rear, the gunner's house and gun-shed, the whole of Spring-gardens, Spring-gardens-mews, and the streets formerly known as New-street, Spring-gardens, and Spring-gardens-terrace; St. Matthew's Chapel, together with the whole of the houses on the south side of Spring-gardens between the chapel and the passage leading into St. James's Park, five houses in Charing-cross (Nos. 37 to 41) north of Buckingham-court, and the houses on the east side of Spring-gardens backing upon the houses facing Charing-cross, as far as Drummond's Bank.

The houses fronting upon Charing-cross from the passage-way leading into St. James's Park to the street leading into Spring-gardens, with the exception of Nos. 53 and 54, Charing-cross, are not proposed to be taken. Messrs. Drummond's new bank, the Ship public-house, and Messrs. Cox's banking-house are not included within the limits of the land to be acquired. We shall have to return to the subject.

THE ARCHITECTURAL REVIEW OF BELGIUM.

UNDER the above title a committee of architects in Brussels is about to introduce a monthly publication of great interest to the architects of Belgium and others. Each number will contain five plates, "phototypes," executed with the greatest possible care, and being copies of the most important, the most interesting, and the most original works of Belgian architects. It is, therefore, essentially a national publication, which cannot fail to occupy a distinguished place in the libraries of architects and builders. The committee which has taken the direction of this review will do well to satisfy the undoubted desire of engineers, sanitary inspectors, antiquaries, and archæologists, that descriptions should accompany the plates. The main defect of many Belgian works of this class is the insufficiency or complete want of a descriptive text. This new review, it is stated, will be somewhat similar to the well-known French publication of M. César Daly.

Society of Engineers.—On Monday, the 5th of June next, in the Society's Hall, a paper will be read on "Railway Tunnelling in Japan," by Mr. T. M. Rymer-Jones.

* Vol. xlii., p. 363.

ENGLISH AND FOREIGN TECHNICAL EDUCATION.

THIS was the title of a paper by Mr. Edward C. Robins, F.S.A., read before the Society of Arts on the 24th ult. We confine ourselves to what the lecturer gave as the result of his own experiences in Germany:—

The Executive Committee of the City Guilds recently instructed Professors Armstrong and Ayrton to make a tour of inspection of the polytechnic schools of the German-speaking countries, with the view of determining the most suitable fittings and apparatus for the new buildings in progress at Finsbury and South Kensington. As a member of that committee, I volunteered to accompany them, and I met Armstrong at the beginning of January last at Strasburg, where a new university is being constructed, to cost, when finished, not far short of a quarter of a million of money. Besides the main block of the building devoted to classical learning, mathematics, &c., separate blocks of buildings, specially constructed under the supervision of the professors themselves, are being constructed for chemistry, physics, botany, &c. In short, it is to be a university and Polytechnic in one and the same institution, for high-class students. The architect of this princely foundation is the Professor of Architecture at Carlsruhe: thither we went to find a new technical chemistry laboratory, and school of agriculture and forestry, in addition to the former buildings of the Polytechnikum, with museums of specimens and models of every kind. Thence to Mulhouse, a manufacturing centre, visiting the model dwellings, the dye-works and calico-printing establishments, and the chemical schools, established by the manufacturers. Thence to Geneva, where Ayrton met us, and we, together, inspected the new university, chemical and physical schools. Thence to Zurich, at which celebrated Polytechnikum every science is taught, both pure and applied; here are separate museums of models for teaching physics, chemistry, machine engineering, architecture, drawing, modelling, agriculture, forestry, botany, &c. Here are nine professors of mathematics, 46 full professors, 54 teachers,—100 in all; 490 students and 250 auditors,—750 in all, which, however, is 500 less in number than used to be the case when this school (now thirty years old) had fewer competitors of its own kind, and felt less of the growing absorption of high-class students by the universities. Thence to Munich, to see the splendid new Polytechnikum there, the new university, chemical and physical laboratories, and Pettenkofer's Hygienic Institute, concerning which Dr. Renk writes me to say that it is also part of the University of Munich, its director, Dr. Pettenkofer, being the professor of hygiene at the university. It was erected three years ago, and was a part of the Physiological Institute. It is designed for the education of students in Medicine and Hygiene, and for practical investigations therein. Officers of health have to obtain its diploma. Thence to Vienna, where has long been a vast Polytechnikum for 1,500 students, a remarkable collection of models and objects for each department. Here are also new technological buildings, a new weaving and chemical school, just opened, &c.; everywhere the provision for first-class secondary education of a technical character is extending. It has been found to give forth results which point to this general extension.

At this point, Professor Armstrong went on to Gratz, to see the new physical and chemical laboratories there, and to Buda Pesth, whilst I and Professor Ayrton went to Dresden and Chemnitz, Ayrton returning to his London classes, after visiting Wurtzburg, while I rejoined Armstrong at Dresden, and visited the new Polytechnikum there. Thence to Leipsic, in which university Armstrong himself studied two years and a half. Here is a street full of separate new buildings, for chemical, physical, and other laboratories. Thence we proceeded to Berlin, where, besides the new university buildings for science, referred to before, is a large stone building, erected at the instance of local manufacturers, for special chemical analyses; there are fine laboratories attached, and students admitted, but certain of the work done is considered private to the members: it is a school of research.

Mr. Felkin has published a book on the "Trade and High Schools of Chemistry in Saxony," to which I must refer you, where

every kind of technical instruction is given, in both primary and secondary schools. Aachen was the last place we visited together: here is one of the finest and most elaborately fitted Polytechnics of the many buildings we saw; it is, in itself, a lesson in technical education, of a kind that we have no examples of in this country, not only in fitting, but in heating, ventilation, lighting, and electrical apparatus associated therewith. I spent the month of January in making this rapid survey, and noting the fittings, the chief purpose of our visit; and an impression of preparedness on the part of the countries we visited, to fight out the question of scientific superiority in technical matters, was left on my mind, that I should like to communicate to others. My belief is that the omission of high-class scientific education for the middle and upper classes, in England, is the true cause of our being apparently outrun in the industrial race of the period; and the movement which is now set on foot has come from the right quarter, viz., from the commercial and manufacturing centres, who begin to find its monetary value. In these schools everything is taught that can be gained at the universities, except the dead languages, while modern languages and the applications of modern science to art and industry are added, and the thoroughness with which they are taught is best evidenced by the fact that nearly all our own leading men have found it desirable to spend some years in Germany, and frankly to acknowledge we have nothing to equal it in England. All secondary education in Germany is more general and thorough. * * * *

Except to the extent to which mechanical work and testing materials is done in the engineering school at King's College, and at the University College, London, we found no workshops attached to any of the Polytechnica which we visited. Models of every kind of mechanical action, of every kind of machine, &c., there were, but these were not made by the students; in fact, manual labour is excluded from the Polytechnica generally, and only to be found in the intermediate trade-schools already described, and in them to a much less extent than is commonly supposed. Now, it is true that we have no such organisation in this country, but we are daily approximating it. The influence of South Kensington is making itself felt, and our secondary schools are introducing science little by little, while great efforts have been already made in some of the chief towns in England.

For example, at Owens College, Manchester, and the Grammar School; at Mason's College, Birmingham; the Yorkshire College, at Leeds; at Sheffield, Nottingham, Liverpool, Bristol, and elsewhere.

At the latter place the famous trade and mining school, so long established there, is about to be transferred to new quarters, at a cost of 30,000*l*., and will be a monument of the munificence of the Society of Merchant Venturers. As their architect, I am enabled to state that no reasonable expense will be spared to render this a model school of the kind. Then, again, realisation of the complete scheme of the City Guilds will soon place London on a par with the other capital cities of Europe. The Central Institution will be an English Polytechnikum of the first order; the Finsbury College, or "technika," superior to its Continental prototypes. In conclusion, what have we to learn from all this? In the first place, to support all efforts and to improve the intelligence of the working classes; and, secondly, to raise the standard of professional excellence.

In a paper read by Mr. Slater at the Architectural Association, the importance of the study of the natural sciences and their application to specific industries connected with the art of building was forcibly insisted upon. Young men are too often pitchforked into the professions of engineer, architect, and surveyor, without any more relative preparedness than is the working man. Better preparation for articles of apprenticeship is the thing most wanted in the constructive professions. Apprenticeship is the best business school, but it might be improved on its educational side. The architectural and mechanical classes at the German Polytechnica, which extend over three years, and the work done, which I carefully examined, is of a better class than is usually understood; from the very first, the student has to work out the strains of every floor, or roof, or speciality in construction, and to delineate the same in skeleton diagrams attached to every plan he draws. The mechanical draughtsman is not given a subject to copy, but only the parts of a machine, which he has himself to piece together, to realise the machine to be drawn, so that, from the rough sketches of the master, he has to thoughtfully work out in practical draughtsmanship the theory he has been taught to apply constructively. True, he is surrounded with models and drawings of every mode of construction and style of design, principles of motive power, its emission, transmission, and arrest; but they are ministering spirits, not arbitrary laws, fettering his freedom. At least, they need not be other than helps to his imagination. We enter our articles too early; eighteen is surely early enough, sixteen is the common time. The establishment of examinations at our institutes will certainly help to bring about a change in this matter, and soon it is to be hoped that, just as candidates for entry to the technical educational advantages to be hereafter obtained at the central Institution of the City Guilds will be required to produce certificates of having passed preliminary examinations at other schools of lower grade, so admission to the examinations of our professional institutes should be ultimately given only to such standards as shall be able to produce similar educational certificates of competency up to a certain point, which can only be fixed from time to time, as the means of obtaining such certificates shall have been increased. By this means, these professions will be aiding in the movement in which none can be more directly interested than they, and will prove their loyalty to our country in the best possible way, namely, that of raising the scientific tone of professional education, and fitting the students to compare with foreign competitors in the race for national predominance in every good thing, but especially that of technical knowledge, theoretical as well as practical.

* * *

One word more, and I have done. The highly educated young men from the foreign Polytechnica become masters when they can, but are not ashamed, till then, to act as foremen of manufactories, &c. Now, there is a great reform required in the system, by which foremen and clerks of works are appointed here. The position of clerk of works is a most difficult and responsible one, and should stand higher in the social scale than it does, and be paid better. This will not be the case so long as uneducated mechanics form the staple from which such men are drawn. I look forward to the time when a superior order of men will become the responsible agents, both of the architects and contractors. And this will follow both from the growth of intelligence in the class below them, and the educational supremacy of those above them, a result which the general spread of technical education, as I have endeavoured to define it, must inevitably produce, as "men run to and fro, and knowledge is increased."

CORN MILLS.

THE INSTITUTION OF CIVIL ENGINEERS.

AT the meeting on the 16th of May, the first paper read was "On the Various Systems of Grinding Wheat, and on the Machines used in Corn Mills," by Mr. W. Proctor Baker.

The author said wheat, originally ground in a pestle and mortar, or between rollers and a hard stone tablet, in both cases by hand-power, was by the Romans, at the time of the Christian era, ground by millstones, and a thousand years ago the millstone did not differ materially from that of the present day. The sifting of the meal, however, seemed to have been done by hand-labour, and the machines by which flour was dressed were products of quite recent times. The Exhibition of Mill Machinery, in 1881, directed attention to the revolution taking place in the art of milling. The Hungarians and Americans had been credited with the possession of processes which the millers of this country were thought to have been slow to adopt, and consequently it was supposed they were in danger of losing their trade. It appeared, however, that these processes were combinations of machinery of recent introduction, but still well-known to British millers, and that they were not adapted to the manufacture, as it was obliged, by circumstances, to be conducted in this country. The flour to be obtained from any given description of wheat was not, as ordinarily supposed, all of one quality, but varied according to its position in the wheat-kernel. The methods in general use made one flour of average quality from the grain, which was of a description that met a ready sale. The Hungarians and Americans divided and subdivided the qualities from one wheat, the former into as many as ten or twelve different sorts, the latter into a smaller number; and as different markets required different qualities, they were able to find a market for the whole series of qualities, sending each to an appropriate market. But the home miller was obliged to make, for his own local demand, the particular quality which the district required, because the home market was his only market. As a rule, only one quality of flour being required in the district within reach of a mill, the home miller was debarred from using processes whose success depended on finding markets for several qualities, and especially on selling the very fine flours at high prices. The system in general use up to about ten years ago was low grinding, by which it was sought, at one operation, to crush the kernel of the wheat into flour, and at the same time completely divide the flour from the bran. Lately, the tendency had been not to complete the grinding at one operation, but rather to proceed on a system known as "gradual reduction." The reason for the change of practice was, that in low grinding not only was the interior of the grain crushed into minute particles, known as flour, but, at the same time, the bran being brittle, broke, or a portion of it was broken into equally small particles, and these became inextricably mixed up with the flour, and could not be separated from it. The presence of these particles in the flour gave a dark colour to bread made from it. A system based on the Hungarian procedure had come into use in order to avoid this disadvantage. It was sought, while dividing the bran from the interior of the grain, to break up the latter, not into flour, but into fragments of the size of a very small pin's head, known as "semolina," or "middlings." But in doing this, particles of bran were still broken up and mixed with the semolina. The semolina was, however, large enough to be subjected to a winnowing operation, performed by an appropriate machine, called a "purifier"; this separated the branny particles, and left the "semolina" pure, being, in fact, small fragments of the wheat without mixture of bran. The fragments were crushed by roller-mills or millstones to flour, and gave a pure flour free from specks. Not only, however, was it possible thus to separate the bran, but as the semolina varied in density according to its position in the wheat corn, and as that which was most dense gave better flour than the less dense, the semolina itself was graded in quality according to its specific gravity, and each grade being ground separately gave a different quality of flour. Thus, several different qualities of flour were obtained from the same wheat. To get semolina instead of flour, it was necessary to subject the wheat to a cracking rather than to a crushing action in grinding, and for this purpose the grinding had to be accomplished at repeated operations, hence the system was named "gradual reduction." The wheat of commerce delivered to the miller contained all manner of seeds, dirt, stones, nails, and articles inappropriate for flour-making, which it was necessary carefully to remove. A considerable number of machines, performing different functions, had to be provided for the thorough cleansing of the wheat, removing all dust and polishing it, before it was ready to be ground. The grinding, which was formerly accomplished altogether by millstones, was now in some cases entirely, and in other cases at some stages, performed by roller-mills. The use of these was extending. It had been established that the best materials for the roller were chilled cast-iron or porcelain. The former might be used for grinding wheat or semolina, the latter was fit for soft semolinas only. The chilled iron was hard enough and tough enough to bear the severe friction of wheat-grinding without material wear, a friction that porcelain would not stand; but on account of the slight porosity of the surface, porcelain was preferred by some for grinding soft semolina. As considerable pressure was used in grinding semolina, the rollers were apt to heat, and it was found that rollers of about 15 in. in length were the longest that could be usefully employed, while other considerations fixed the diameter at about 9 in. Rollers for grinding semolina had smooth surfaces, and might run at equal or differential speed; rollers for grinding wheat were grooved or fluted, and ran

always at differential speeds. Pressure was applied through the bearings in various ways, by levers, wedges, springs, or screws; but the design of Mechwart, of an anti-friction ring-pressure, afforded the means of applying heavier pressure than any other roller-mill. All other things being equal, the roller-mill which gave the operator the power of putting the greatest pressure on the material to be ground was the best. Another novelty was the centrifugal silk dressing-machine, which consisted of a cylinder slowly revolving, through which the flour was driven by beaters running at a high speed inside it. This machine was almost a necessary accompaniment of the roller-mill, as the meal ground by rollers had a tendency to cake, and the beaters were needed to break up the cakes. But the most important machines of recent introduction were the "Purifiers," which were used for the purpose of purifying and classifying the semolinas. These machines worked either on the principle of causing the semolina to pass through a series of passages, where it was exposed to currents of air, which first removed the bran, and then, as it were, weighed the semolina and divided it; or by centrifugal force the semolina was scattered in a shower, and divided in consequence of the heavy particles flying farther than the light ones; or by an arrangement by which the semolina was made to traverse a long sieve, which had a rapid joggling or oscillating motion. In the latter case the motion caused the heavier particles to sink to the surface of the sieve, and the lighter ones to float on the heavier ones. A pressure of air was kept up under the sieve just sufficient to prevent the light particles from falling through the meshes, while the heavier particles which were heavy enough to overcome the air pressure, fell through the sieve and were collected at the bottom of the machine. An exhaust above the sieve carried away the lightest particles, and all but the lightest and the heaviest passed away into a receptacle at the lower end of the sieve. The purifier was of more importance in the modern processes than the roller mill, for the work of the latter might be done by the millstone, while without the purifier neither the millstone nor the roller-mill could make pure or the finest flour. As the taste for whiter bread appeared to be on the increase, an extension of the high-grinding systems might be expected.

The second paper was on "Modern Flour-Milling in England," by Mr. Henry Simon. In this the importance of the flour-milling industry of the United Kingdom was noticed; as much as 2,000,000*l.* per annum being turned over in a single milling establishment in London. Much flour was also imported from Hungary and the United States, especially from the latter country. The quantity of wheat ground in England in one year was more than 25,000,000 quarters, and for the whole of Europe the daily expenditure for cereals to be ground was about 1,500,000*l.* It was stated that flour produced by roller-mills in England was worth 2*s* 6*d.* to 5*s.* more per quarter than that ground by stones, the wheat being of the same quality.

CONVERSAZIONE OF THE INSTITUTION OF CIVIL ENGINEERS.

THE President of this institution held a *conversazione* on Thursday evening in last week in the South Kensington Museum, by permission of the Committee of Council on Education. The guests, of whom there were upwards of 2,000, were received by Sir William and Lady Armstrong in the second division of the architectural court, and passing onwards many lingered for awhile in the Lord President's Court, where the Hungarian band played a varied and attractive selection of popular and classical airs. This court was illuminated by the electric light (Brush system), and the scene viewed from either of the galleries was both animated and picturesque. Sir Frederick Leighton's spirit fresco, the mosaic portraits on the walls, the loan collections of works of art, and the numerous examples of Oriental pottery, were brilliantly illuminated and greatly admired by the ladies and gentlemen who thronged the court, the *tout ensemble* presenting a scene of animation not often witnessed in the Museum. In the Italian Court, the chapel on the north side was occupied by the string band of the Royal Engineers, under the leadership of Mr. J. R. Sawerthal, and here also the visitors crowded every avenue, threading their way amongst the various objects for which this court is famous, and passing through the north and north-west cloisters to the various refreshment-rooms. One of the latter was in the form of a tent of red and white canvas, erected in the quadrangle, and very prettily decorated with a wealth of flowers, ferns, and palms. Many of the guests sought the various rooms appropriated to the national collection of pictures by British artists, and the Raffaelle cartoons in the adjoining north gallery; while others roamed amidst the galleries where the Sheepshanks collection is displayed, and listened to the clever pianoforte recitals given by the distinguished Russian pianist, M. Vladimir de Pachmann, all and singular expressing unbounded satisfaction with the entertainment afforded them. The only drawback to the holding of the *conversazione* in the South Kensington Museum is that there is no room for the display of new inventions, models, &c., appertaining to engineering science and construction, which have formed so interesting and instructive a feature of some previous *conversazioni* of the Institution.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

AT the twelfth meeting of the session, Mrs. Dent, of Sudeley Castle, sent a plan of the Roman villa now being excavated in Spoonley Wood, about a mile from the castle. It is a building of large size, a portion of a centre and a long projecting wing being already laid open. A corridor runs around both portions, while several pavements of elaborate design have been found, one being extremely fine. A hypocaust has also been met with. The find promises to be a remarkable one.

Mr. E. Walford described two Roman coins found at Hampstead, pointing to the presence of the Romans in the locality.

The Rev. G. B. Lewis exhibited photographs of the little known tapestries now preserved in Knowle Chapel, having been found in an attic several years ago by Lady Delaware. They are in remarkable preservation. They represent the Passion of our Lord, and were probably brought to Knowle by Archbishop Wareham.

Mr. Gordon M. Hills read a short description of several examples of acoustic pottery found in ancient churches.

Sir Henry Dryden exhibited a photograph of a remarkable chess-man of Norman date, found at Northampton Castle.

The first paper was by Mr. J. Greenstreet, on the Camden Roll of Arms recently found by Mr. W. de Gray Birch, F.S.A., in the British Museum, where it has remained for many years apparently unnoticed. It is the earliest known series of arms, there being 270 shields, and the length of the parchment being 5 ft. 3 in. It was in Camden's possession about A.D. 1605, but it dates from the time of Henry III. or Edward I.

The second paper was by Mr. E. P. Loftus Brock, on the remains now being excavated on the site of the new Stock Exchange. A large mass of Mediæval walling has been found, of thirteenth and fifteenth century dates, the remains of a mansion of importance. A portion of a Roman pavement and much pottery have also been discovered. The mansion was probably that of John de Wengrave, who had licence to crenelate his dwelling, 7th of Ed. II.

FEMALE SCHOOL OF ART.

THE annual distribution of prizes to the successful students at this institution took place (as we briefly announced last week) on the 24th ult., in the large hall of the Freemason's Tavern, Sir Philip Cunliffe Owen presiding. Among those on the platform were Mr. Francis Bennoch, F.S.A.; Mr. Gorge Godwin, Professor Donaldson, Colonel Britten, Mr. R. P. Spiers, Signor Bulletti, Mr. Thomas Wyatt, Mr. Harding, Mr. Robert Shepard, Mr. T. Chisholm Gooden, Mr. Frederick Latreille, Dr. Ellison, the Rev. Mr. Goe, and Miss Louisa Gann, Superintendent of the school.

Mr. Francis Bennoch, the hon. secretary, commenced the proceedings by reading the annual statement, from which it appeared that, during the past year, the school had achieved unusual success, the students having won twelve national awards in competition with all the schools of art, both male and female, in England, Ireland, and Scotland; and the unprecedented number of ninety third-grade awards of books. During the year 203 students received instruction in the various branches of art-education. On the 9th of April last, 3,138 drawings, paintings, and models, were forwarded to South Kensington from the school, being the works of 157 students, or an average of nearly twenty works for each student. The national awards included silver medals to Miss F. Reason, Miss E. C. Nisbet, and Miss M. E. Carter, for drawings and studies in chalk and water-colours; and several bronze medals for similar work. For the national Gilchrist Scholarship nine of the students competed, one of whom was successful. The scholarship of 40*l.*, founded by the Baroness Burdett-Coutts, was awarded to Miss Crittenden. The school committee acknowledged with thanks the reception of donations from the Corporation of the City of London, and from the late Mr. W. Atkinson, in aid of the fund for augmenting the Queen's scholarship prize to the annual value of 60*l.* A large proportion of the students who have passed through the institution are reported to have received great benefit from the instruction imparted to them, and many are filling excellent appointments in schools and business firms in London and the provinces. The continued patronage of her Majesty the Queen, who has in various ways contributed to the progress and efficiency of the school during the past twenty years, claimed the warmest gratitude from all friends of the institution.

The prizes were then distributed. The principal were:—Queen's Gold Medal, Mary E. Harding; Queen's Scholarship, Constance Wood; Queen's Prizes, Ethel Nisbet, Kate Richards, and Norah Waugh; Clothworkers' Scholarship of twenty guineas, Mary E. Harding; Gilchrist Scholarship of 50*l.*, Lilian Abraham and Ottilie Amalie Bodé; Baroness Burdett Coutts Scholarships, Dora Crittenden and Lilian Young; National Silver Medals, Mary E. Carter, Ethel Nisbet, and Florence Reason; National Bronze Medals, Lilian Abraham, Edith Harris, Edith Robinson, Norah Waugh, Rose Ethel Welby.

The following prizes were given to pupils in the School of Wood Carving:—Mr. Bennoch's Prize, 5*l.* 5*s.*, to Miss Irvin; Sir John Peter Grant's Prize, 2*l.* 2*s.*, to Miss Rowe; Committee's Prize, 1*l.*, to Miss Reeks; Committee's Prize, 1*l.*, to Miss Williams.

The Chairman then addressed the company on the position which the Female School of Art had attained. He claimed the privilege of rejoicing at its success because he had always had its best interests at heart, and had done all in his power to help it. The school had successfully overcome the difficulties which beset it twenty years ago, and had since then gone on from success to success. It had an individuality which was peculiar to it, and it had had the invaluable guidance of the Superintendent, Miss Gann, and her assistants, to whose unwearied zeal, intelligence, and tact was due, in the largest manner, the high position which it occupied among the art-schools of the kingdom.

The Rev. F. F. Goe moved, and Mr. J. Chisholm Gordon seconded, a vote of thanks to Sir P. C. Owen for presiding, which was briefly acknowledged.

Mr. George Godwin, in proposing a vote of thanks to the Baroness Burdett-Coutts, the Gilchrist trustees, and the Clothworkers' Company, remarked that among the many friends of the institution none had rendered greater assistance than the Baroness. He regretted that the students had not come forward to compete for the prize which he had offered for cameo-cutting, because he was convinced that it was an occupation for which ladies were specially adapted, and it was a matter for national regret that money should go out of the country to benefit foreign artists when there was plenty of talent at home for which insufficient employment was forthcoming.

Professor Donaldson having seconded the motion, it was carried with applause.*

Early German Woodcuts.—The Exhibition at the Burlington Fine Arts Club this season is a very interesting collection of early German woodcuts of the fifteenth and sixteenth centuries.

* Will some of our readers take note and act accordingly, that a really good amateur concert in aid of the desired increase of the Queen's Scholarship is to be given at 129, Harley-street on the 15th of June. Between the parts the inimitable George Grossmith will give a new musical entertainment.

NEW STEAM-BOAT PIERS AT NINE ELMS AND BATTERSEA.

THE public will shortly reap the benefit of two additional piers for the up-river traffic, which the London Steam Boat Company are about to construct. The removal of the Nine Elms Pier some time ago, on the action of the London and South-Western Railway Company, has for some time past been felt as a serious public inconvenience. This, however, is about to be remedied by the erection of another pier in the locality, along Messrs. Bryan & Co.'s wharf in Nine Elms-lane, a very short distance from the site of the old pier, and, as we are informed, much less difficult of approach. It may incidentally be observed that in connexion with this Nine Elms Pier question the South Western Railway Company are not unlikely to sustain a Parliamentary defeat in the opposition which they are offering to the South London Tramway Company, who are seeking powers to extend their line along Nine Elms-lane.

STEAM TRAMS.

THE question of the use of steam on tramways has recently occupied the authorities of two large Continental cities, and the result at which they have arrived is diametrically opposite in the two cases. To speak first of Paris. On several tramway lines in that city and its suburbs, steam was in use for from two to five years. On the line starting from the Arc de Triomphe, and proceeding to Courbevoie, locomotives were longest in use, but since the commencement of May steam engines have ceased to run, and have been replaced by horses again. The Paris Tramway Company wished to give steam a thorough trial, and as they have had five years' experience of it, and have tried every system they could find,—the number was no less than twenty-one,—they have every reason to consider that their acquaintance with the merits and defects of steam power is pretty exhaustive. The end has been, as we have intimated, that they have totally abandoned steam and reverted to the old system of employing horses. The result of the prolonged trials has been to show that steam is dearer than horse power. The engine requires a driver and stoker, whose pay is greater than two of the old drivers or coachmen. Then the fuel and maintenance of the engines in order were costly, while the original outlay in capital is about the same as that required to keep up the requisite stud of horses. The only advantage with steam was that on Sundays and holidays, when there was an unusual number of passengers to convey, the steam engine could draw a couple of carriages, each carrying fifty passengers. Against this was to be set the fact that in the broad avenues where the tramlines are laid down, and where alone it was safe or permissible to employ steam, there are seldom sufficient passengers to fill two carriages, even on Sundays and holidays. Moreover, hardly a week, often not a day in the week, passed without some accident on the steam line, which proved very costly to the company, and led to complaints being addressed from various quarters to the authorities. Hence, the authorities at last issued a prohibition against the further employment of steam, and in this the Company acquiesced with perfect readiness. Among the twenty-one systems of engines tried on the Paris lines, several were propelled by compressed air.

A complete contrast with the failure in Paris is presented by the results of the experiments and the resolutions of the authorities at Hamburg. The United Tramway Company there, after laying down new rails, partly of Demerbe's and partly Haarmann's patents, have, with the express permission of the police and municipal authorities, just abandoned horses in favour of steam locomotives. It was in September last that the company petitioned to be permitted to make a greater use of steam power in place of horses. Before the concession was granted the authorities instituted a searching investigation into the question. They despatched official engineers to Holland and various places in Germany where steam was in use: they also obtained from the authorities in the various cities in France and Italy where it was employed official accounts of the experiences made in those places, and the materials thus acquired were compared with the experience gathered in Hamburg itself.

The result of the examination was that the Hamburg authorities unhesitatingly granted permission for the extended use of steam there. The only engines permitted to be used, however, were those on the Winterthur system, the reason being that they had been found to be the safest. Since the beginning of March, accordingly, steam has been increasingly used on the Hamburg tramways.

There is only one observation we shall permit ourselves on these two opposite decisions. In the case of Hamburg, the line runs mostly in the suburbs to the neighbouring village of Wandsbeck. Besides the fact that in the German port horses and vehicles in the streets are far less common than in many other cities of the same size, it is obvious that there is far less objection to a steam-engine along a country road than in the streets of a city. Whoever has had a little experience in a large city knows how great a nuisance horses are, and admits the desirability of some safe method of traction which shall enable us to dispense with them in towns. Even if the Paris verdict should be confirmed against the use of steam in crowded streets, still the resources of engineering science are not exhausted, and we hope that there is inventive ingenuity enough left in the world to devise a safe mechanical traction machine applicable to the streets of large cities.

A CASPIAN AND AZOF CANAL.

A RUSSIAN officer, Colonel Blum, has submitted to his Government a plan for joining the Sea of Azof with the Caspian Sea by means of a canal. As the Caspian is likewise to be connected with the Sea of Aral to the east, there will be a direct route from the Black Sea for trade with Khiva, Bokhara, and the other parts of Central Asia recently conquered by Russia, and those that are still independent. In ancient time, and even as late as the middle of the sixteenth century, the river now called the Amu Daria flowed through the Sea of Aral and discharged itself into the Caspian through a mouth which has subsequently been stopped up with sand. The Sea of Azof is 25 mètres and the Sea of Aral is 11 mètres higher than the Caspian Sea. If the proposed canal is really carried out on a sufficient scale, it will ere long be possible for vessels to steam from the Atlantic into the centre of Asia, and to the very middle of the wilds of Tartary.

EXTENSIVE NEW BUILDINGS AT MR. SPURGEON'S ORPHANAGE.

IN addition to the Girls' Orphanage, forming the south side of the quadrangle of these buildings, which have just been completed and opened, other buildings in connexion with the institution are at present in course of erection. On the south-east side a spacious swimming-bath and play-hall are being built, from the designs of Mr. Wright, architect, of Hayter-road, Brixton, the contractor being Mr. Johnson, of Belle-Vue-road, Wandsworth-common. The building is 122 ft. in length, and uniform in its architectural features with the block forming the Girls' Orphanage, on the south-west side of the quadrangle. It is Gothic in character, faced with red brick, with white Suffolk brick bands and window-heads, and stone three-light mullion windows and copings to the gables surmounting the frontage, of which there are six in number. A range of twelve Gothic windows and entrances are carried across the frontage in the lower part of the elevation, which has an ornamental turret in the centre. Internally, the building is 40 ft. in height from the floor level to the ridge of an open-timber roof. The interior is divided into two parts, of 60 ft. in length each, one portion containing the swimming-bath, which is 50 ft. long, and 20 ft. wide, the depth at the shallowest end being 3 ft., and at the deepest end 4 ft. 6 in. The entire width of the interior is 40 ft., and on the marginal space around the bath there are thirty-four dressing-boxes. The floor of the play-hall, which is for the recreation and amusement of the girls only, is laid with wood diagonally. The cost of the building will be about 3,000*l*.

Immediately to the north-east of the swimming-bath is the infirmary, which is being considerably enlarged and entirely refaced, so as to present a more ornamental architectural appearance. The frontage, which like the other buildings connected with the institution, are in red and white brick, contains two floors, having two and three light arched windows, and the elevation is surmounted by a lofty central gable, and four smaller gables, two on each side.

The girls' orphanage, a view of which appeared in the *Builder* when the erection of the structure commenced, has had added to it, since it was opened a few months ago, a handsome covered arcade, which is carried along the building, immediately in front of the entrances, to its entire length of 270 ft. It is 9 ft. in width, and is supported on thirty-two ornamental iron columns. Messrs. Peto Brothers were the contractors for the main building, and Mr. Johnson, of Belle Vue-road, Wandsworth-common, was the contractor for the arcade.

On the north-west side preparations are at present being made for the erection of an extensive new dining-hall and other buildings in connexion, sufficiently spacious to dine 500 children. The dining-room is intended to be so constructed as to form a large lecture-hall, in which there will be galleries. When this building is completed, the intention is to convert the present dining-room into an orphanage chapel. The estimated cost of the building, including the land, is about 10,000*l*.

EXHIBITION OF WORKS IN HORN.

THE Worshipful Company of Horners of London, with a view of encouraging technical education, and following good examples that have been set, have, with the permission of the Lord Mayor, decided to hold an exhibition of articles, ancient and modern, whether British or Foreign, made of horn, or of which horn is a component part, but excluding works in ivory, bone, or tortoiseshell, at the Mansion House, on the 18th, 19th, and 20th of October next. Prizes will be given to exhibitors being members of the trade. We invite, for the Company, the co-operation of members of the trade, gold and silversmiths, and owners of articles of ancient and modern art and utility, in furthering the objects the Company have in view.

Mr. C. H. Compton, Renter Warden of the Company, 19, Great George-street, Westminster, who has largely aided the movement, will give any information that may be required.

Fires in Theatres.—As matters stand at present, the inquiry ordered to be made by the Metropolitan Board of Works, stimulated to action by the Home Office, into the respective security against fire of the various metropolitan theatres, is still proceeding; but, as far as is known, no practical steps for carrying out the recommendations made are yet in contemplation. Instead of acting, and acting promptly, theatrical managers appear to be taking to writing protests against official interference. It is to be hoped that some good will ultimately come out of this paper warfare. But as a means of conciliating the respective interests, we may just call the attention of all concerned to the report of a committee of the Austrian Society of Engineers and Architects on the Vienna fire, to which little attention has as yet been directed, and a translation of which was published by the *Builder*. That report unmistakably points out that strong measures are required, and what they consist in. Amongst other very valuable suggestions, it states that the auditorium and stage ought to be treated as two separate buildings. "A party-wall, therefore, which divides the theatre throughout its entire width and height becomes a *sine qud non*, on account of its great importance in the case of fire, forming, in that instance, a complete screen. Beyond the proscenium opening, it should have but few other outlets; the latter, as a matter of course, being shut by iron doors. No connexion whatever ought to be permitted between the attic stories of the stage and the auditorium. Experience teaches us that just in this proscenium opening is hidden the greatest danger for a theatre-going public; and the method of properly shutting it off from the auditorium, or rather the iron curtain itself, forms one of the cardinal points." The matter could not possibly be put in plainer language. The alterations and improvements suggested in the report referred to may involve expenses which, in some cases, are sure to be heavy; but even managers of theatres will admit that human lives are far too precious to be sacrificed to considerations of economy.—*Iron*.

BUILDING PATENTS.*

APPLICATIONS FOR LETTERS PATENT.

2,244. J. Thallon, London. Floors and treads of stairs. May 12, 1882.

2,272. J. M. Hall, London. Stench-traps. May 15, 1882.

2,273. C. H. von Ullner, London. Syphonic ventilating chimney-top and wind-guard. May 15, 1882.

2,276. A. H. Hearington, London. Apparatus for obtaining light and heat from gas. May 15, 1882.

2,302. J. Mitchell, Paris. Manufacture of decorative transparencies for ornamenting windows, &c. (Comp. Spec.) May 16, 1882.

2,303. A. M. Clark, London. Apparatus for drying wall-paper. (Com. by J. S. Warren, W. H. Fuller, and J. H. Lange, New York, U.S.A.). (Comp. Spec.) May 16, 1882.

2,327. T. H. P. Dennis, Chelmsford. Means of attaching knobs and handles to spindles, &c. May 17, 1882.

2,346. G. H. Haywood, London. Over-mantels of chimney-pieces. May 18, 1882.

2,357. T. W. W. Barrett, London. Apparatus for enabling persons to ascend to the tops of chimney-stacks, &c. May 19, 1882.

2,365. W. R. Lake, London. Construction of ceilings. (Com. by J. Budd, Boston, U.S.A.) May 19, 1882.

2,377. H. Kelly, London. Gullies. May 20, 1882.

2,395. H. Greenhous, Worcester. Fireplaces. May 22, 1882.

2,420. W. S. Morton, Edinburgh. Manufacture of materials for covering and decorating wall-surfaces, &c. May 23, 1882.

2,477. J. Smith, Liverpool. Domestic fireplaces. May 25, 1882.

2,498. A. M. Clark, London. Door-fasteners. (Com. by C. A. Crougeyer, Detroit, U.S.A., and G. W. Busch, Walkersville, Canada.) May 25, 1882.

NOTICES TO PROCEED

have been given by the following applicants on the dates named:—

May 16, 1882.

135. F. Holmes, New-cross. Manufacture of fire-lighters, &c. Jan. 10, 1882.

209. T. R. Shelley, Smethwick. Glazing greenhouses, roofs of railway stations, &c. Jan. 14, 1882.

363. W. R. Lake, London. Means for supporting, &c., window sashes. (Com. by P. W. Blythe, Boston, U.S.A.) Jan. 24, 1882.

May 19, 1882.

1,410. N. Scott, London. Means of ingress and egress to theatres, halls, &c., in case of fire or panic. March 23, 1882.

1,890. F. Kingston, Deptford. Eye for holding stair-carpet and other rods. April 20, 1882.

1,920. J. Keith, Edinburgh. Boilers and heating apparatus. April 22, 1882.

May 23, 1882.

283. A. M. Clark, London. Machinery for making trenches for drain-pipes. (Com. by M. E. Pidgeon-Saugerties, U.S.A.) Jan. 19, 1882.

317. J. Holroyd, Leeds. Sanitary trough closets. Jan. 21, 1882.

438. J. Imray, London. Manufacture of decorating papers. (Com. by A. Cottais, Paris.) Jan. 28, 1882.

544. G. Otway, London. Apparatus for cutting or dividing bricks, tiles, or slabs from plastic clay, &c. Feb. 4, 1882.

1,388. G. Kent, Portsea. Chimney-tops or ventilators. March 22, 1882.

1,902. W. Selley, Manchester. Ash guards for domestic fireplaces. April 21, 1882.

2,303. A. M. Clark, London. Apparatus for drying wall-paper. (Com. by J. S. Warren, W. H. Fuller, and J. H. Lange, New York, U.S.A.) May 16, 1882.

May 26, 1882.

925. W. H. Lascelles, London. Earth-closets. Feb. 25, 1882.

ABRIDGMENTS OF SPECIFICATIONS.

Published during the Week ending May 20, 1882.

4,157. F. Hamilton and F. A. Hamilton, London. Reflectors, &c., of daylight.

On the under-side of a frame, glazed with glass, are placed silvered reflectors with a glass face, for diffusing the daylight. (*Pro. Pro.*) Sept 27, 1881. Price 4d.

4,344. A. W. Calvert, Leeds. Street and other lamps.

Round the bottom are a double row of perforated plates of metal, the inner row having smaller perforations than the outer row, and inside these there is also wire gauze, to still further subdivide the air as it enters. A transparent baffler is also placed round the supply-pipe, to prevent the air approaching the burner in too large a volume. The staves of the lamp are hollow, and allow air to enter through them to the upper part of the lamp. Reflectors are placed outside the top of the lamp. Oct. 5, 1881. Price 6d.

4,391. B. W. Spittle, Wednesbury. Attaching door-knobs to their spindles.

A locking washer is slipped over the square spindle, in which is a toothed spring, and the loose knob is screwed on the spindle until a proper adjustment is made and the tooth of the spring engages in one of the slots in the base of the shoulder of the knob. Oct. 10, 1881. Price 4d.

4,512. W. A. McCormick, London. Apparatus for regulating the supply of water to closets, &c.

An inner cistern is suspended in a larger one, and on one movement of the lever the inner cistern is inclined, to cause a flush, the supply-valve is shut off, and the discharge-pipe opened. (*Pro. Pro.*) Oct. 15, 1881. Price 2d.

Published during the Week ending May 27, 1882.

4,503. C. Gall, Halifax. Safety appliances and fasteners for windows, &c.

This is made in the form of a dovetail, male and female, one on each sash. On the upper sash is the catch-box, bevelled and hollow, and on the lower sash is a plate carrying two pivoted levers, which enter the hollow of the catch-box. To form an alarm, the levers are lengthened and carry a hammer, which, when the window is opened, strikes and explodes a cap on an anvil beneath. Oct. 15, 1881. Price 6d.

4,511. B. R. Harrington, Beckenham. Air inlets or ventilating gullies for drains.

These gullies are made of earthenware or iron, and are throated or bell-mouthed, and have an outlet at the side which fits on to the rising pipe from the drain. (*Pro. Pro.*) Oct. 15, 1881. Price 2d.

4,526. P. Everitt, Great Ryburgh; and A. Barnard, Norwich. Stoves and grates.

The bottom, back, and sides are solid, and passages commencing below the level of the bottom pass round the back, bottom, and sides of the grate and terminate in apertures in the sides and back, a little above the fuel. By these passages heated air is mixed with the products of combustion to consume the smoke. A baffle also is placed above the fire. Oct. 17, 1881. Price 6d.

4,551. G. E. Waring, jun., Newport, U.S.A. Water-closets.

The pan has no valve, but a siphon-like outlet rising from the bottom. The longer limb of the siphon enters a trap in which water is retained, but so as to uncover the lower end of the siphon. When water is admitted to fill the siphon, the siphonic action set up empties all the water out of the pan, which is again filled by an after-flow. Oct. 18, 1881. Price 6d.

4,557. J. A. Hornby, Menai Bridge. Water-closets.

The valves are so arranged that when the soil-pipe is opened to empty the pan the orifice in communication with the ventilating pipe of the closet-pan is close, and *vice versâ*. Oct. 19, 1881. Price 6d.

4,565. W. M. Farley and J. H. Bond, Torquay. Supplying dwelling-houses, &c., with water.

The same pipe is used both for feeding the house cistern and for drawing the water off therefrom. The end of this pipe in the bottom of the cistern is provided with a rising and falling ball or float valve, suitably loaded to prevent it from closing the pipe under the action of the pressure when the supply is turned on. This valve is connected by a chain to a float, which, when the cistern is full, will close the pipe by drawing up the valve. (*Pro. Pro.*) Oct. 19, 1881. Price 2d.

4,566. W. A. Martin, London. Open fire-grates.

A pair of plungers from the sides of the grate, which can be projected forwards towards the centre of the grate, and then be drawn back again, allowing the fresh fuel to be placed at the side of the spent fuel. (*Pro. Pro.*) Oct. 19, 1881. Price 2d.

4,590. F. Worth, Frankfort. Chimney-flues.

To prevent volatile metallic particles escaping through the chimney-flues of foundries, &c., thin vertical sheets of perforated metal are placed in the bottom of the flues. (Com. by Gesellschaft des Emser Blei und Silberwerks, Ems, Germany.) Oct. 20, 1881. Price 4d.

4,598. G. Pitt, Sutton. Water-closets.

To make closets inodorous the soil-pipe descends into a reservoir filled to the brim with water. The matter remains there, covered with water, until it is removed. (Com. by J. Finck, Baden Baden.) Oct. 20, 1881. Price 6d.

4,603. T. E. Clarke, Nailhead. Fire-grates.

The gases of combustion are forced to pass downwards through the fire to the bottom of the grate, where they enter two openings, one on each side of the grate, by which they pass through pipes to the chimney. Oct. 20, 1881. Price 6d.

4,609. J. Court, London. Appliances for ventilating, heating, and cooling.

A shaft is formed rising above the top of the building, within which is a flue made of metal pipes for the kitchen or other fire which is constantly burning. The space in the shaft becomes warmed, creating an up-draught. Pipes or channels lead from the various rooms to the shaft. Oct. 21, 1881. Price 2d.

4,634. A. M. Clark, London. Composition for use in carpentry, fire-proofing, &c.

This composition consists of Kaolin clay and resinous sawdust, which is prepared with water, pressed in a machine, dried, and subjected to a great heat in a kiln, when it is ready for use, and can be sawn into plank or boards, &c., and used for building or other purposes instead of wood. (Com. by C. C. Gilman, Eldora, U.S.A.) Oct. 22, 1881. Price 4d.

* Compiled by Hart & Co., Patent Agents, 29, New Bridge-street, E.C.

THE NEW TOWN BUILDINGS AT READING.

THE new Town-hall, Free Library, Reading-Room, and Museum at Reading were formally opened on Wednesday last by Mr. John Walter, M.P. They will cost, when quite completed, about 60,000*l*., and have been erected from the designs of Mr. Thomas Lainson, architect, Brighton, by Mr. J. T. Chappell. The new buildings (which adjoin the municipal buildings erected a few years ago from the designs of Mr. Alfred Waterhouse, A.R.A., and of which we gave a view in the *Builder*, volume for 1877, p. 109) include a town-hall, which will comfortably seat 1,500 people, besides a large orchestra, a public library, reading-room, and museum, public offices, fine new schools for science and art classes, school for cookery, &c. The lighting arrangements are similar to those of the House of Commons. In this case, instead of the glass ceiling, the architect has contrived a glass cove all round the hall below the ceiling. Behind this are placed the gas-lights, which, communicating with the external air by means of flues, not only carry off the products of combustion from the gas, but assist in the ventilation of the hall. The ventilation of the new Municipal Buildings, Reading, has been carried out by Messrs. Robert Boyle & Son, of Holborn-viaduct, in a very elaborate manner. For the extraction of the vitiated air in the Great Hall three air-pump ventilators, each 6 ft. in diameter, with 2 ft. shafts, are fixed on the roof and connected with nine ornamental perforated panels in the ceiling by means of hoppers and 14-in. branch pipes. The supply of air is brought down from the roof level through fourteen flues, 9 in. by 9 in., built in the walls, and delivered into the hall through ornamental cast-iron brackets, ranged along the side and end walls. One of Messrs. Boyle's patent downcast ventilators, 18 in. in diameter, is fitted on top of each of the above flues. The large organ, presented to the town by the Reading Philharmonic Society, consists of 2,238 pipes, and is played through the agency of the pneumatic lever, the wind being supplied by three hydraulic engines. The case was designed by the architect of the hall, Mr. Thomas Lainson, and the organ was built by Messrs. Henry Willis & Sons, of London. A notable feature of the great hall are the balconies or galleries, which project a considerable distance from the walls on cantilevers. There are a number of doors in different parts of the building, so that in case of a panic there would not be the slightest difficulty in emptying the hall in the shortest possible time. The free library is divided by oak and glass screens into three departments—reading-room, reference-room, and general library. The authorities of the West-street Library (free) have intimated their intention of closing their establishment and handing over the contents, considerably more than 4,000 volumes, to the trustees of the new Free Library. There are also a large and small museum furnished, in which will shortly be placed the conchological collection of the late Mr. Bland, who bequeathed it to the town. The schools of science and art, which are already in occupation, include a school of cookery, chemistry, &c., and also a fine suite of modelling and drawing rooms. Towards the cost of all these works the Corporation gives 10,000*l*. and the site, and the subscriptions up to the present amount to 27,863*l*.

ART IN FINLAND: OPEN COMPETITION.

THE Imperial Senate of Finland, at a recent sitting, decided upon opening to the architects of all countries the competition for designs for a large public edifice to be erected at Helsingfors as a home for the Finnish Society of Arts, and as offices and museum for the Finnish Society of Art Industry. Four prizes are offered of the respective values of 4,000, 1,200, 1,000, and 800 Finnish marks. The competing designs are to be delivered at Helsingfors on or before March 1st, 1883. Plans of the site, together with programme of the details, conditions, &c., to be complied with, may be obtained either from Helsingfors, or through the Russian Consulate. Applications sent to Finland should be addressed to Mr. B. Ahnger, Finance Expedition, Imperial Senate, Helsingfors, Finland.

PRECAUTIONS AGAINST PANIC IN LONDON THEATRES.

AT the meeting of the Metropolitan Board of Works on the 26th ult., the Building Act Committee reported numerous structural alterations which it was recommended should be made in several theatres for providing efficient egress and the prevention of the spread of fire. The theatres to which the recommendations referred were Drury-lane, the Gaiety, and the Adelphi. In the cases of Drury-lane and the Gaiety it was recommended, in addition to other alterations of minor importance, that a proscenium-wall, properly constructed, should be erected between the stage and the auditorium, extending from the foundations of the building to a height of 3 ft. above the roof; that a wall should be built across the proscenium opening under the stage, to separate the auditorium from the cellar; that all the openings in the proscenium-wall should be closed with iron doors fitted without woodwork. In the case of new theatres, it was recommended that the certificates should only be issued upon the buildings being completed in accordance with the requirements of the Board. Mr. Deputy Saunders moved the adoption of the report, which was agreed to. A letter was received stating that the Home Secretary was glad to learn that the Board were taking active measures with regard to the arrangements in theatres in case of fire, and that he hoped no time would be lost in enforcing such regulations as might be necessary.

Mr. Hollingshead, in a letter to the *Daily News*, banters the Metropolitan Board of Works upon what he considers to be the excessive attention that they have bestowed upon his theatre, and observes, with reference to the proscenium wall which the Board requires him to build, that this wall has been built and used for the last fourteen years, although the Board, as he alleges, appears to be unaware of the fact. Captain Shaw, in his report, notices that the proscenium wall is not carried up above the roof, and is not continued below the stage, so as to divide the stage from the audience portion of the house, and it is to this, we presume, the requisition of the Board refers. The practice of dividing the stage from the rest of the house by a brick wall is of comparatively recent introduction, many of the principal theatres, notably Covent Garden and Drury Lane, being built without proscenium walls. The precaution is a very salutary one, and if, in addition, some means could be devised for closing the proscenium opening by a fire-proof shutter or curtain, the security of audiences would be improved.

HYDE PARK CORNER IMPROVEMENT SCHEME.

SIR,—We notice in your issue of the 6th ult. a description, illustrated by a plan and perspective view, of a scheme for the relief of the traffic at Hyde Park Corner, as proposed by Dr. Churchill.

We think it right to state that that gentleman, having professionally consulted us on the subject, and submitted a plan somewhat similar to that reproduced by you, we pointed out to him the grave objections thereto which occurred to us.

We were especially of opinion that not only would the authorities resist any such interference with a main thoroughfare as would be necessary in order to carry out Dr. Churchill's proposal of commencing an inclined approach to a subway under Piccadilly and Hyde Park Corner, but that objections might also be taken to such a wholesale diversion of all traffic,—vehicular and pedestrian,—upon grounds of public morality.

We therefore (though, as a rule, averse to subways as a means of dealing with stagnated traffic) advised Dr. Churchill that, in our opinion, the most feasible plan of dealing with the vehicular traffic, on the lines he suggested, would be by a subway, constructed as centrally as possible, under Piccadilly, with inclined approaches at both ends,—the one from Knightsbridge commencing opposite the Alexandra Hotel, and within the railings of Hyde Park, thereby utilising an otherwise comparatively useless piece of ground, admirably adapted as an outlet for the heavy traffic without in any way interfering with the main thoroughfare; while, at the other end, we proposed gradually to regain Piccadilly by the Green Park, somewhat as proposed by Dr. Churchill.

Undoubtedly, it appeared to us that a scheme destined to be a boon to the general public, as well as to the frequenters of Hyde Park, would be jeopardised unless objections which we felt that the Board of Works, the local and other authorities, could, and would, raise were removed. We were, therefore, reluctantly compelled to differ with Dr. Churchill as to his proposed approach to the subway from Knightsbridge, and as to the line of subway he had adopted.

However, after frequent interviews, and with Dr. Churchill's full concurrence, we delineated our modifications of his scheme upon a plan similar to that which we now inclose. We do not so much complain that, under the circumstances, Dr. Churchill has not done us the justice of placing our plans side by side with his own; but that in some detail, and by a slight alteration in the perspective view, our ideas appear to have been, as you will see, made use of, and appropriated, without any sort of recognition!

GEORGE WM. USILL,
Assoc.-M. Inst. C.E.
JAMES ALSTON CARFRAE,
Assoc.-M. Inst. C.E.

CASES UNDER METROPOLITAN BUILDING ACTS.

BAD BRICKS.

AT the Clerkenwell Police-court, Jas. Pettigrew, of 62, Drayton Park, Holloway, builder, was summoned under 40 & 41 Vict., cap. 32, sec. 17, by the Metropolitan Board of Works, for that he unlawfully did omit to construct the external back and front of the main part of certain houses above the level of the first-floor joist of good and sound well-burnt bricks in certain houses, being the first, second, third, fourth, and fifth houses eastwards from Drayton Park. Mr. Burton, solicitor, appeared for the Board. The defendant did not appear. Mr. J. G. Turner, the District Surveyor, having proved the bad quality of the bricks, and that the defendant had been convicted on the 30th of March last and fined 5*l.* in respect of each house and costs, Mr. Barstow made an order to pull down the whole of the houses, with costs.

BAD CONCRETE.

At the Clerkenwell Police-court, Henry Stnoe Slegg, of 131, Devonshire-road, Holloway, builder, was summoned by the Metropolitan Board of Works, under 40 & 41 Vict. cap. 32, sec. 17, for having formed the foundation of two houses in a *cul de sac* out of Drayton Park, on land to the east of the North London Railway, of concrete both insufficient in thickness and improperly composed, contrary to the Board's By-laws and the above Act. Mr. Burton, solicitor, appeared for the Board, Mr. St. Aubyn for the defendant. Mr. J. G. Turner, District Surveyor, having deposed to the above facts, and that the defendant had been previously convicted and fined 20*l.* and costs, Mr. Barstow made an order to remove the whole of the concrete within twenty-eight days, and costs of the application.

WATER COMPANIES' CHARGES.

DOBBS *v.* THE GRAND JUNCTION WATER COMPANY.

IN the Queen's Bench Division of the High Court of Justice last week, Mr. Justice Field delivered judgment in this case, which came before their Lordships in a case appealed from by Mr. Dobbs, the inhabitant of a house in Westbourne Park, from a decision of Mr. Cooke, one of the metropolitan police magistrates.

When he was called upon to answer a summons for the non-payment of two quarters' supply of water to his dwelling-house, and which was charged at the rate of 140*l.* as the annual value thereof, the appellant contended that he was only liable for payment in respect of 118*l.* as the net annual value as assessed for poor-rate; while the respondents submitted that Mr. Dobbs should be held liable for the amount of water-rates as defined under the special Acts of the company from the 7th Geo. IV., cap. 40, section 27, under which water companies were bound to supply a sufficient quantity to inhabitants of private dwellings at certain rates.

After a careful review of the circumstances of the case, his Lordship said that the Court was of opinion that the basis of the clause for water-rates was on the net rateable value, and not on the gross estimated rental, and for these reasons they held that the order of the magistrate could not be supported, and that the appellant was entitled to judgment.

THE EMPLOYERS' LIABILITY ACT.

RIGHT OF WORKMEN TO CONTRACT THEMSELVES OUT OF IT.

GRIFFITHS *v.* LORD DUDLEY.

THIS case, which raised a question of great importance (and which was mentioned in the *Builder* a fortnight ago, on the occasion of the County Court judge's decision), has now been brought into the Queen's Bench Division of the High Court of Justice, before Mr. Justice Grove and Mr. Justice North.

The matter arose out of the following circumstances. Lord Dudley employed in his collieries 8,000 or 9,000 persons, and among them had been a man named Griffiths, who was killed, and whose widow the plaintiff was. She sued in the county court, and recovered a verdict in respect of his death for 150*l.*, and it was admitted for the defendant that she would have been entitled to this verdict but for the existence of a special contract between the master and the servant. In connexion with Lord Dudley's collieries there was a colliery club, to which his lordship subscribed 2,000*l.* or 3,000*l.* a year, and of which each person employed was a member. One of the terms of the employment was that every person so employed undertook for himself and his representatives to look to the funds of the said society alone for compensation in the case of injury in the course of that employment, whether resulting in death or not. The contention for Lord Dudley was that this clause freed him from any claim under the Employers' Liability Act, but the County-court judge decided that, even assuming that a workman might contract himself out of the Act, yet he could not contract to deprive his widow or other personal representative of the benefit of the statute. He further expressed his opinion that as Lord Dudley did not bind himself to pay his contribution to the society, the supposed contract was void for want of consideration; and, beyond this, he held that it would be against public policy to allow any persons whatever to contract themselves out of the Act. It was now submitted to their Lordships that the County-court judge was not warranted in coming to these conclusions; and a rule was asked for to show cause why there should not be judgment for the defendant, or a new trial.

Rule granted.

IMPORTANT TO ARCHITECTS AND CONTRACTORS.

AT the Nottingham County-court, on Wednesday last, May 24th, a case was heard of considerable importance to architects, builders, and contractors. Mr. Sidney R. Stevenson, architect, of Nottingham, sued Mr. Thomas A. Stevenson, a local physician, for the sum of 33*l.* 12*s.*, the balance of an account owing for professional services rendered. The plaintiff was represented by Mr. Weightman (barrister), and Mr. Stanger, barrister, appeared for the defendant.

The evidence for the plaintiff showed that the defendant instructed him to prepare plans for the erection of a house in the "æsthetic" style. This he did, and the tender of Messrs. Ellis, well-known contractors, was accepted for the carrying out of the plans. The plaintiff informed the defendant that a clerk of the works must be engaged, but he refused to sanction this, thinking it was not necessary. It was thereupon explained to him that an architect was not expected to visit the place where the building was going on more than two or three times a week, and that it was the duty of the clerk of the works to superintend the minor details. He, however, promised to do what he could. The building was completed, and the plaintiff's commission amounted to 133*l.* 12*s.* The defendant, however, paid 90*l.* of this amount. The plaintiff was cross-examined to show that the work was not properly done, that the drains were defective, and that the house in consequence was unhealthy. It was, contended that these were details which could not possibly come under the notice of the plaintiff in his capacity as architect, but that the difficulty should have been obviated by the employment of a clerk of the works.

His honour said that these were clearly the duties of a clerk of the works. If, however, the defendant did not choose to engage one he must take the consequences. An architect could not be expected to be present to superintend these details. The architect could not be held to be responsible.

After this intimation an attempt was made to settle the case privately, and eventually a verdict for the plaintiff for 25*l.* and costs was agreed upon.

His honour said a clerk of works could not be considered merely as an ornamental appendage, for, as matter of fact, the duties which he was usually expected to perform were of a very important character.

Dowgate Dock.—The restoration of that part of Dowgate Dock which was destroyed by the recent conflagration is now complete. The work has been carried out by Messrs. Clarke & Bracey under the superintendence of Mr. Robert Willey, architect.

CHURCH-BUILDING NEWS.

Warmwell (near Weymouth). — The small parish church of this Dorsetshire hamlet has long been in need of restoration. The church consists of nave, chancel, and western tower. The chancel is now in course of completion after restoration, or rather re-building, at the sole expense of the vicar, the Rev. E. Pickard-Cambridge. The execution of the works has been effected from the designs of Mr. Robert C. Bennett, architect, Weymouth. The main features of the ancient fabric were Early English, and the same style has been maintained throughout the new chancel. The walls are built of the soft local Elvan found in the district, while the dressings are of Box-ground. The eastern window, a triple-light one, is filled with painted glass, a memorial to a lady relative of the vicar's. The contractor for the general works is Mr. G. J. G. Gregory, builder, of Dorchester. The sculpture and the carving generally are by Mr. Harry Hems. Mr. Cambridge, we are told, has been his own clerk of the works, yea, he has acted throughout the job as master-mason too. Every stone in the edifice the vicar has set with his own hands.

Llangwm (Pembrokeshire).—The Archdeacon of St. David's re-opened this church on the 4th ult., after restoration by Messrs. Balcombe & Price, of Pembroke Dock, under the superintendence of the architect, Mr. E. H. Lingen-Barker, of Hereford. This is one of the largest of country parish churches. It is cruciform in plan, the north transept containing some interesting fifteenth-century stone-work, including some recumbent effigies. The restoration includes new pitch-pine open boarded roofs, floors, seats, and doors, and stone windows, copings, and crosses. A new stone bell-turret supplants the previous brick one; a retaining wall has been carried round the whole of the north side, where the churchyard is nearly level with the eaves; a south porch has been added; and a vestry has been added to the south transept. New choir-stalls, reading-desk, communion-table, and lectern have been furnished, and a Bath stone and Devonshire marble pulpit (erected by Dr. Beatteon to the memory of his wife, who was a daughter of the present rector), a white marble angel in the attitude of resignation supporting the book-slab.

Handsworth.—The parish church of Handsworth is one of the most interesting places of its kind in the neighbourhood of Birmingham, for in it are deposited the bodies of the three men who made the name of the Soho Works famous,—Matthew Boulton, James Watt, and William Murdoch, the inventor of coal-gas. The seated statue of Watt, one of the finest works of Chantrey, has a separate chapel to itself, built under the direction of the sculptor, who has been careful to arrange the light upon his work in a manner worthy the consideration of those who may desire to see interior sculpture lighted to the best advantage. For a long period the church was much neglected, having been patched from time to time in a strange manner. But four or five years ago the present rector,—the Rev. Wm. Randall,—made an appeal for funds, and the place was then restored and extended in a manner worthy of its associations. But the funds ran short before the whole of the interior decorative work was finished. During the last few months, however, this also has been taken in hand, and is now completed. The carvings and sculpture were entrusted to Mr. J. Roddis, of Birmingham, and Messrs Barlison & Grylls, of London, have filled the great west window with stained glass.

Bakewell.—The restoration of the chancel of Bakewell Church, Derbyshire, has just been completed. The work has been done principally at the expense of the Ven. Archdeacon Balston, vicar of the parish, the outside walls only having been done at the expense of the Ecclesiastical Commissioners. The works include a carved wood-screen under the chancel-arch, the lower part being in accordance with the screen of the Vernon Chapel, in the Newark or south transept. A coved canopy springs eastward from the top of the screen, and surmounted by a double brattice on the east and west sides, runs across from side to side of the chancel. On both hands are stalls with "Miserere" seats, richly and quaintly carved. The walls of the chancel are enriched with colour; in the lower part the prevailing tone is green with golden crowns upon it. Above is a different pattern in red. Towards the top the letters I.H.S., surrounded by a crown, are placed at intervals on the wall, while between the windows on the north and south sides are the four evangelists, represented by their usual symbols,—the man, the lion, the ox, and the eagle. In the sides of the windows are drawn sprigs of flowers, or single flowers. The reredos, which stands about 4 ft. from the east wall, consists of a marble base, on which the holy table stands; above rises a plain slab of alabaster, upon which a richly-carved piece of white alabaster, containing in twelve niches the twelve apostles. Above this rises an elaborate specimen of wood carving in oak, which forms a kind of frame to a panel in lime wood, on which is engraved "The scene on Mount Calvary." The architect employed in the execution of the whole is Mr. G. Gilbert Scott.

Wolborough.—In connexion with the opening-out of the tower arch, a new tower-screen has just been erected in the parish church of St. Mary, at Wolborough, half a mile from the town of Newton Abbot, Devon. It has been designed in character with the surroundings, by Messrs. Rowell & Son, architects, of Newton Abbot. Wolborough Church, in the main, is a Perpendicular Gothic building, and its old carved oak rood, parclose screens, and enclosed chapels are one of the glories of the neighbourhood. The tower arch shows evidences of being early thirteenth-century work. Under Mr. Rowell's immediate direction, this has now been opened out, and the stones denuded of the layers of stucco and coats of paint under which they have for so many generations lain hid. The walls have been pointed, and left otherwise bare. The screen consists of a continuous arcade of twelve bays, surmounted by a moulded cornice, in the main hollow of which are carved pateræ. The lower parts, to a height of 4 ft., are panelled. Above are uprights, with mullions between. They are carried up to some altitude, and from them spring continuous pierced tracery, ornamented by carved panels. All the tracery-heads are cinquefoiled. There are double doors in the central part of the screen, and these work upon Smith's patent double-action wing-hinges. The screen is erected in memory of Mrs. Emily Elizabeth Gaye, and the work has been carried out by Mr. Harry Hems.

DISSENTING CHURCH-BUILDING NEWS.

Newcastle-on-Tyne.—The foundation-stone of a new Free Methodist Chapel has been laid. Messrs. Oliver & Leeson are the architects.

Heaton (Newcastle-on-Tyne).—A new Congregational Church for this district has been opened. The schoolroom is now in course of construction, but the tower and spire are to remain unfinished. Messrs. Oliver & Leeson are the architects.

Elton.—A new Wesleyan Methodist Chapel has been opened at Elton. The building is of brick, with stone and terra-cotta dressings; it measures 38 ft. by 64 ft., with three class-rooms at one end and a rostrum at the other, and will seat 350 people, including gallery. The contractor was Mr. John Tinline, of Bury, and the architects were Messrs. Maxwell & Tuke, of Manchester.

Mossley, near Manchester.—The foundation stones of a new Primitive Methodist School Chapel were laid on the 13th ult. in Wagon-road, Mossley. The new building is to serve the purposes of both a Sunday-school and preaching-room. The estimated cost is about 700*l.*, towards which the friends have already raised upwards of 200*l.* The contract for the whole of the work has been let to Mr. Ralph Whitlee, of Barnes-green, Manchester.

PROVINCIAL NEWS.

Crewe.—A large new foundry at the Crewe works of the London and North-Western Railway, and said to be the finest building of the kind in the world, was opened on the 13th ult., by Mr. Richard Moon, chairman of the London and North-Western Railway Company. Addressing the assemblage afterwards, Mr. Moon alluded to the extension of their railway works, and to the great improvement which had been made in the construction of locomotive engines by their successive engineers. He directed attention to the 2,544th locomotive for the London and North-Western Railway, which had been completed that morning. The Duke of Sutherland, in proposing "Success to the Town of Crewe," responded to its rapid rise and development, and said that if it continued to grow during the next thirty years in the same proportion, it would be "five times as large as Chester." The whole of the workmen and their wives were entertained to tea by the directors of the railway company, and in the evening a promenade concert and ball were given.

Wolverhampton.—At a recent meeting of the Wolverhampton Town Council, Alderman John Jones stated that the anonymous donor who had offered to pay for the erection of an art gallery had for that purpose paid 5,000*l.* into the bank to the credit of the trustees, viz., Sir Rupert Kettle, the Rev. J. T. Jeffcock, and himself. It had been decided to offer a premium of 200*l.* for the designer of the best plan, and 20*l.* for the unsuccessful competitors. The consent of Government had been obtained to the appropriation of land in Lichfield-street as a site for the gallery.

Plymouth.—At a late meeting of the Plymouth Town Council, Mr. Morrish moved the adoption of the committee's report, recommending that the reconstruction of the market on the southern side of the proposed new road from Cornwall-street to Ebrington-street be dealt with as soon as the necessary funds can be obtained, that the work be carried out in sections, and that Block A in the design of "Ye Cheape," abutting on the said road, be forthwith proceeded with. Mr. Sanders Stevens seconded the resolution, which was carried.——After a great deal of discussion on a proposal that Smeaton's Eddystone light-house be allowed to remain *in situ*, instead of removing it and re-erecting it on the Hoe (owing to the limited space available on the latter), the Council has confirmed the grant of a site on the Hoe, but has appointed a committee of nine members to consider what arrangements should be made between the Council and the Eddystone Committee in connexion with the proposed erection, and to report thereon, the sanction of the Council to any particular site being withheld until the report is presented.

Books.

Our Factories, Workshops, and Warehouses: their Sanitary and Fire-resisting Arrangements. By B. H. THWAITE, C.E. E. & F. N. Spon, London and New York. 1882.

THIS is a most useful and sensible, and, we may add, a very interesting book. The author takes a comprehensive survey of the risks to which those large numbers of people who work in our factories are subject from defective ventilation, defective sanitary arrangements, mismanagement of machinery, and from fire, and states in a short and comprehensive manner, elucidated by numerous small diagrams, his idea of the methods to be observed in fighting against these various sources of danger. No section of our population, not even seamen, are exposed to more numerous and constant dangers than factory "hands," if we take with dangers to health those to life and limb by accidents; and a perusal of Mr. Thwaite's book, even by those who have no official concern with the subject, would open the eyes of many who are not conversant with such matters to the amount of risk which is or may be daily incurred in the course of manufacture on a large scale. Many persons would be surprised, for instance, to learn how much difficulty and risk attends the apparently simple matter of adjusting and shifting belts on machinery in motion, and what frightful accidents may happen from apparently the most trifling origin in these matters. Accidents with machinery are rendered, in many cases, more terrible and more difficult to check from the connexion of the subsidiary machines with a main driving-engine in a separate and sometimes distant room, with the driver of which no immediate communication can be made. Mr. Thwaite strongly urges that all local machinery should be so constructed as to be capable of immediate disconnexion from "the power," on the spot, which is only a question of some increased initial expense. In this and other matters for the safety and welfare of factory hands he is very advanced in his views, urging the advisability of bath-rooms on the establishment, with, perhaps, a small charge, so as to give the hands the opportunity, if they like, of going home clean; and, at least, the provision of ample lavatory accommodation and encouragement to the frequent use of it, which, as he says, has its effect on the *morale* as well as on the health of the workers. We hope Mr. Thwaite's book will be largely read by those who are responsible for the health and safety

of factory hands; and many who are not so will find information in it that is both usefu and interesting.

A Manual of Sculpture: Egyptian, Assyrian, Greek, Roman. With 160 Illustrations, a Map of ancient Greece, and chronological List of ancient Sculptors and their Works. By GEORGE REDFORD, F.R.C.S. London: Sampson Low & Co. 1882.

BOOKS on ancient sculpture seem to be in demand, for this is the third or fourth we have had before us recently. It is one of the series of illustrated handbooks of art history of which we have noticed some others (on architecture, painting, &c.); and which were put forth at first, or so we understood, as being under the general editorship of Mr. Poynter, though this claim seems to be dropped now,—at all events, in the case of this volume. Mr. Redford regards his subject as having two main divisions,—the archæological or historical, and the artistic; the former he has intentionally kept on one side, devoted his limited space chiefly to the artistic aspect of sculpture. The book is divided into "technic," "æsthetic," and "historic and descriptive" sections, and a fourth section giving "examples." The illustrations are very numerous, though not in a very high style of execution, which could hardly be expected in relation to the price of the book; as long as they are merely illustrative of facts they serve the purpose well enough, but in the latter part of the book the examples, as in the case of the Venus of the Capitol, are too slight and coarse in execution to convey the effect intended, and accurate outlines would have been better. This may be observed in referring to the engraving of the Niobe figure, p. 247, one of the larger illustrations, in which no attempt has been made to do more than outline the head, limbs, and folds of the drapery, and this illustration is satisfactory as far as it goes, not attempting more than an accurate representation of the general form. Shaded engravings of sculpture should be very well and delicately done to be worth anything; where this cannot be afforded, outline is better. A chronological list of ancient sculptures and their works adds value to the small volume, and in the remarks on examples of ancient statues it is clearly pointed out which portions are genuine and which are restored; a matter in regard to which even those who are not novices in the subject require a reminder sometimes. The book, as a whole, is well done, and gives a well-arranged and readable outline of the subject.

The History of Dorchester, Oxfordshire: British Earthworks—Roman Camp—Bishopric; and the Architectural History of the Church. Compiled from the best authorities, with a general Introduction, by JOHN HENRY PARKER, C.B., &c. Parker & Co., Oxford and London. 1882.

THIS is, in the main, a republication, under Mr. Parker's superintendence, of all the available published information in regard to Dorchester. The main motive for this, as stated by Mr. Parker in his "advertisement" or preface, is that there is shortly to be a Professor of Archæology appointed at Oxford, and the whole of the Ashmolean Museum is in future to be given up for that subject. "But archæology is a very comprehensive term; there are many branches of it, and we may hope that neither heraldry nor architectural history will be overlooked; and for these there is no better field than Dorchester, as supplementary to Oxford itself, which abounds in fine examples of each period, but as it happens fewer of the thirteenth century than any other; and this is just the period in which Dorchester Abbey Church is most important." Accordingly, Mr. Parker has continued in this volume a short *resumé* of the archæology of Dorchester, in the way of an Introduction; Mr. James Parker's lecture on the Earthworks in 1868; "A Short Account of Dorchester," by the Rev. W. C. Macfarlane; a paper, by Mr. E. A. Freeman, on the Church; a lecture on it, by Mr. James Parker, in 1874; and the Rev. H. Addington's "Account of the Abbey Church," re-issued by Mr. Macfarlane. This latter essay is well illustrated by engravings of details of the church, and the book is also illustrated by restored plans of the site under Roman occupation, and Mr. Freeman's restored plan of the church. The whole makes a very useful text-book of the archæology of a special district, perhaps the more useful as it impartially sets forth the somewhat different views of different archæologists, and gives some scope for the student to exercise his mind in deciding between the claims of various theories. The idea of collecting in one book the various essays of importance on the archæology of one place is a rather new, and may prove a very useful one, worthy of being repeated in other instances.

Lectures on the Science and Art of Sanitary Plumbing. By S. STEVENS HELLYER. B. T. Bateford, 52, High Holborn. 1882.

MR. HELLYER, we are glad to see, has published the course of lectures on sanitary plumbing which he delivered last year at the Society of Arts. They form a neat, readable, little book, well illustrated, and ought to have, and no doubt will have, a wide circulation.

VARIORUM.

"A TOUR Round the World," by Albert Smith (Infield, Fleet-street), advertised in our columns, is the genuine relation of a working man who went through Australia, Honolulu, across America from San Francisco to New York. It gives a better idea to working men who think of trying what they can do in the colonies than many larger and more scholarly books.——By a coincidence, the next little book close to our hand, "How to Live on Nothing" (Chapman & Hall), is by the widow of Arthur Smith, brother of the late Albert Smith, and now Mdme. Bouchard. The lady appears to have had losses, and to have been forced to live economically, and she now desires to give others the benefit of her experience. Live on nothing people cannot, but they can live on much less than is supposed, if they know the way.——The June number of the *Nineteenth Century* includes a paper on the Tower of London, by Mr. Algernon B. Mitford, the principal object of which appears to be to advocate some further proposed restorations there, although what those restorations, removals, and rebuildings are really to be, no one has yet told the public. Perhaps some one will be so good as to let us know.——Those persons who have had their attention particularly directed to Shakspeare's "Romeo and Juliet" by Mr. Irving's revival of that play, will be interested in the subject of an article which will appear in the June number of the *Antiquary*. The original poem from which Shakspeare toook his plot and most of his characters is analysed, and the parallel passages are set forth in this article.

Miscellanea.

Shelley Theatre, Chelsea Embankment. This compact and well-appointed little theatre, which has been erected in Tite-street, by Sir Percy F. Shelley, for the delectation of his friends, and may occasionally be hired by others having a like end in view, was filled with a brilliant audience on the night of the 26th ult., gathered together on the invitation of Mrs. George Medley. The pieces chosen were "Dearest Mamma," by Walter Gordon, and Planché's evergreen "Loan of a Lover," both of which were exceedingly well played. A family sorrow, at the last moment, prevented the appearance of the amateur who was to have filled the part of *Browser* in the first piece, but the difficulty was overcome by the enlistment of Mr. Horace Wigan, who played the part with the dry quaint humour peculiar to him. The honours of the night were carried off by Miss Annie Selous, whose *Gertrude*, both as regards acting and singing, was delightful. Little less should be said of the graceful acting of her sister, Miss Millie Selous, in both pieces. Mr. Alfred Dever is as good a *Peter Spyk* as can be found upon the stage. The theatre would seem to hold about 250 persons.

Proposed Memorial to the late Canon Pearson.—At a meeting held in the Jerusalem Chamber, Westminster, under the presidency of the Dean, it was resolved, on the motion of Lord Coleridge, Lord Chief Justice of England, —"That a memorial of Hugh Pearson, in the form of a recumbent figure, be placed in Sonning Church, under the sculptured arch between the vestry and the sanctuary." An executive committee was named to select an artist, and to superintend the carrying out of the projected memorial, which, it is estimated, may be achieved at a cost not exceeding 1,000*l*.

Alleged Manslaughter by a Surveyor.—At the Central Criminal Court, on the 26th ult., before Mr. Justic Lopes, Mr. William Oakley, a surveyor, surrendered to his recognisances to take his trial upon an indictment charging him with the manslaughter of Edwin George Prosser. The defendant pleaded "Not guilty." Mr. Tickell conducted the prosecution, and in opening the case said it was alleged, on the part of the prosecution, which was founded upon the coroner's inquisition and upon a true bill which had been found by the grand jury, that the death of the deceased was brought about in consequence of alleged gross negligence and carelessness on the part of Mr. Oakley. The The defendant was a member of the firm of Messrs. Smith, Son, & Oakley, of Waterloo-place. He had the control and management of the Earl of St. Germans' estates, including one adjacent to the Shooter's-hill-road. On Saturday, April the 29th, there was a furious gale, which did immense damage to trees in the country. At about five o'clock in the evening, when the storm was at his height, Prosser was driving past the estate in a trap. Blown down by the wind, a tree upon the estate fell upon the vehicle and killed the deceased. The accusation against the defendant was that he was negligent in not ascertaining that the tree was in an insecure state. The defendant's attention had, it was stated, twice been called to it, but he then considered it safe. At the conclusion of Mr. Tickell's statement, Mr. Justice Lopes remarked that he presumed the learned counsel had put the case for the prosecution at the highest, and he asked him how he defined the criminal negligence which was alleged against the defendant. Mere actionable negligence would not do. He would not express any opinion as to what the result of an action under Lord Campbell's Act might be, but he should be bound to express an opinion as to what criminal negligence was. Did not this case, putting it at its highest, amount to a mere error of judgment? The evil consequences would not have resulted if it had not been for the unprecedented gale of wind. Mr. Tickell said he believed Mr. Oakley formed a *bond-fide* opinion as to the state of the tree. Mr. Justice Lopes intimated that he was of opinion that there had been no criminal negligence on the part of the defendant. The jury then formally acquitted Mr. Oakley.

The Church Congress.—The Exhibition of Ecclesiastical Art, which has for so many years formed an interesting adjunct to the Church Congress, will be organised this year on a somewhat extended scale. It will be held concurrently with the Church Congress, at Derby, in the Skating Rink, which will be specially decorated and arranged, from October 2 to the 7th. Many of the leading church furnishers, embroiderers, silversmiths, and glass-stainers have already promised to contribute specimens of their workmanship, and from the central position which the town of Derby occupies it is expected that a very large collection will be brought together. Educational books and appliances will also be included.

Art Exhibition at High Wycombe.—On Saturday last Lord Carrington opened a loan picture exhibition promoted by the Literary and Scientific Institute of High Wycombe. The exhibition, which remains open until this Saturday, the 3rd inst., is a large and valuable one, nearly 700 oil paintings, water-colour drawings, and miniatures being on view. Examples of Salvator Rosa, Vandyck, Canaletto, Ostade, Poussin, Van der Velde, Correggio, Holbein, Wouvermans, Carlo Dolce, Rubens, Paul Potter, and other old masters are on view, while among modern artists Gainsborough, Birket Foster, Alma Tadema, Marcus Stone, Briton Rivière, Burgess, Brett, Strudwick, Ansdell, Copley Fielding, W. Hunt, Morland, Faed, Landseer, and many others are represented. The pictures have been lent by noblemen and gentlemen in the neighbourhood.

The Warley Mount Estate, Brentwood.—The development of this estate, which is undoubtedly one of the finest building sites in the neighbourhood, promises to have a considerable influence upon the future of Brentwood. It is stated that there is a growing demand for villa-residences of good character in the locality. Some portion of the estate has been sold, and building has commenced. A second portion is to be sold by auction by Messrs. Ventom, Bull, & Cooper, on Thursday next, June 8th, and, in view of this, extensive works are being carried out in the construction of roads.

Control over Apprentices in the City of London.—It is rumoured that the Bill promised by the Government for the reform and consolidation of the municipal management of London will contain a clause involving the abolition of the Chamberlain's Court of London, which has existed for centuries, and has exerted jurisdiction exclusively over City apprentices, who are bound to trades under indentures peculiar to the Corporation. It appears that there are at present 3,000 of these apprentices, and when any of them are guilty of "idle, insubordinate, wasteful, or immoral conduct," they are brought before the City Chamberlain, who has power to reprimand them or send them for a short period to Bridewell, in New Bridge-street, Blackfriars. A memorial, very influentially signed by City traders, and headed by the Queen's printers (Messrs. Eyre & Spottiswoode), has just been forwarded to the Home Secretary, protesting against any interference with this ancient and peculiar tribunal. The memorialists allege that it affords a cheap, efficient, and prompt method of dealing with apprentices, and obviates the necessity of employers having recourse to the criminal courts, where the lads are too often contaminated for life. They further assert that the abolition of the court would diminish the supply of skilled labour in the City.

The Manchester Society of Architects offers the following prizes to be competed for by such draughtsmen as may be eligible, and by students serving their apprenticeship in the offices of architects in Manchester, or in the offices of any member of the society:—The Society prize of the value of 5 guineas, open to all draughtsmen or students who are under the age of twenty-five years at the date of the issue of these instructions; and Mr. James P. Holden's prize, of the value of 5 guineas, open to all draughtsmen and students who are under the age of twenty-five years at the date of issue of these instructions.

Surveyorships under the Public Health Act.—Mr. John Myatt has been appointed surveyor to the Leek Improvement Commissioners and urban sanitary authority, Staffordshire, at 150*l.* per annum, vice Frost resigned; Mr. W. Cloutman has been appointed surveyor to the St. George local board and urban sanitary authority, near Bristol, at 100*l.* per annum, vice Dawson, appointed to the Leyton (Essex) local board and urban sanitary authority; and Mr. John Millington has been appointed surveyor, collector, and inspector of nuisances to the Wirksworth local board and urban sanitary authority, Derbyshire, at 100*l.* per annum, vice Webster, resigned.

Proposed Thames Subway between Greenwich and Millwall.—All opposition to the Bill which seeks to revive the powers sanctioned by Parliament in 1877 authorising the construction of a subway under the Thames between Greenwich and Millwall, has been withdrawn. The Bill will therefore, in the ordinary course, pass its remaining stages unopposed through the House of Commons, having already gone through the House of Lord. The time granted for the completion of the subway will expire in June, 1885.

The Proposed Electric Railway under the Thames.—The Charing-cross and Waterloo Electric Railway Bill, which passed unopposed through the House of Commons, has been stopped in its passage through the House of Lords, the examiners having reported that the standing order of the House applicable to this Bill has not been complied with. The Bill has, therefore, been referred to the Standing Orders Committee, which meets this Friday, the 2nd of June, for them to decide whether the Bill should be allowed to proceed.

Hawkshaw (Lancashire).—The foundations and boundary-wall of the new church at Hawkshaw, near Bolton, are now completed. The building is to be in the Early English style, 96 ft. long and 46 ft. broad, in one bay, no pillars being used. The estimated cost, without the tower, is 3,000*l.* The contractor is Mr. Chas. Lomax, of Somerset, and the architects, Messrs. Maxwell & Tuke, of Manchester.

Sanitary Assurance.—A public meeting is to be held at the Society of Arts, Adelphi, on Monday evening, June 12, under the auspices of the Sanitary Assurance Association, of 5, Argyll-place, when Sir Joseph Fayrer, F.R.S., will preside, and Mr. H. Rutherfurd, Barrister-at-law, will deliver an address on "Sanitary Assurance from a Householder's Point of View." The admission to the meeting is to be free.

"Great Paul."—The big bell for St. Paul's has been safely hauled up to his place. The work was performed during Tuesday and Wednesday last. At about half an hour after noon on Wednesday, the bell had been got up to a position a little higher than that which he is intended to occupy. Later in the day, the headstock was hoisted above the bell, preparatory to its being lowered and fastened upon the cannons. It only remains now to attach the head stock and to seat the gudgeons on the bell-cage; and on this Saturday, the 3rd, the solemn voice of "Great Paul" may be expected to be heard. When swung, the edges of the bell will be about 18 in. below the centre of the clock-face, the bell occupying the northern half of the chamber and the clock-works the half on the south side. About 20 ft. above the headstock of Great Paul hangs the old big bell, on which the clock, by means of a hammer, strikes the hours. This bell, which weighs about five tons, is 6 ft. 10 in. in diameter at the edges, and has a sound-bow 6 in. thick, looks very small by comparison with Great Paul, who weighs over 16 tons 14 cwt., is 9 ft. 6¼ in. in diameter at the base, and has a sound-bow 8¾ in. in thickness.

New Offices for the South Hornsey Local Board.—A new building devoted to this purpose has been completed in Milton-road, South Hornsey. It has been erected from the designs and under the personal supervision of Mr. E. Fry, the surveyor of the Board. The character of the buildings is described by the *Hackney and Kingsland Gazette* as "thoroughly composite. The visitor will find nearly all the orders and styles represented. The exterior is Composite and Ionic, the ground-floor and hall and staircase are Doric, the Board-room is Corinthian, and so forth. The combinations and changes make a pretty and striking effect."

New Municipal Buildings, Great Yarmouth.—On Wednesday last H.R.H. the Prince of Wales inaugurated the new municipal buildings at Yarmouth, which have been erected from the designs of Mr. J. B. Pearce, architect, Norwich. In our volume for 1879 (pp. 205-8) we published a view, plans of ground and first floors, and a description of the buildings, of which we will say more next week. We may here, however, mention that the roofs are covered with Ashton & Green's admirable permanent green slates, as supplied by them to the new Royal Courts of Justice.

Engineering on Tyneside.—The engineering industry of Newcastle-on-Tyne is largely developing, and we learn from a local paper that Messrs. R. & W. Hawthorn contemplate removing the whole of their marine works to St. Peter's. Extensive alterations and additions have already been made to their works there, and they have lately concluded a contract with Mr. Walter Scott, of Newcastle, for further considerable additions, the plans for which have been prepared by Mr. Wm. Glover, architect, of the same city.

Shelley's Italian Home.—Mr. G. Barnett Smith, writing to the *Times*, says he hears that Shelley's Italian home is in danger. A road is contemplated between Sant Erenzo and Lerici, and, if it should be constructed, in all probability it will only be the prelude to the dismantling of the Villa Maccarani, which possesses so much attraction for Englishmen. If at all possible, the demolition of Shelley's house should be averted.

Free Libraries.—The Birmingham Central Free Libraries were opened on Thursday last by the Right Hon. John Bright. On the previous day a new free library was opened at Cardiff by the Mayor, Mr. Alfred Thomas. We will give some particulars of these buildings in our next.

TENDERS

For new roads and sewer on the Streatham Estate, for Mr. Edward Rider Cook:—

Keeble, Regent's-park	£1,970 0 0
Jackson, Leyton	1,882 0 0
Peill, Bromley	1,876 0 0
Bloomfield, Tottenham	1,819 0 0
Wilson, Walthamstow	1,799 0 0
Pizzey, Hornsey	1,777 0 0
Harris, Camberwell (accepted)	1,755 0 0

For erection of a Workman's Club at Gomshall, Surrey, for Messrs. Galligan & Son. Mr. W. Ravenscroft, architect, Reading. Quantities by Messrs. Cooper & Sons:—

Bottrill, Reading	£597 0 0
Grover, Reading	575 0 0
W. & G. King, Guilford	518 10 0
Cordrey, Arborfield	457 0 0
Margetts, Reading	452 0 0*

*Accepted subject to modifications.

Tenders for the first section of the Hastings Grammar School. Messrs. Jeffery & Skiller, architects, Hastings. Quantities by Messrs. Strudwick & Mennie:—

		Extra for Doulting stone.
W. J. Rodda, Hastings	£7,365	£196
W. J. Beale, Battersea	7,335	150
David Parks, Hastings	7,049	128
D. C. Jones, Gloucester	6,949	288
A. D. Wornersley, Hastings	6,938	160
W. Coussens, Hastings	6,900	170
James Longley, Crawley	6,844	186
Taylor Bros., Hastings	6,725	100
A. H. White, Hastings	6,592	53
Jas. Stubberfield, Hastings	6,540	40
A. Vidler, Hastings	6,460	46
E. & C. Harman, Hastings	6,235	20
P. Jenkins	6,150	197
Howell & Son, Hastings (accepted subject to reductions)	5,750	250

For roads and sewers on the Cumberland Park Estate, Acton, for Mr. C. F. Allison. Mr. Alfred Wright, architect. Quantities by Mr. C. N. Lailey:—

	Cumberland road.	Woodhurst & Spencer-roads.
	£. s. d.	£. s. d.
W. Armstrong, Chiswick	1,008 9 0	1,050 0 0
J. Strachan & Co., Wood-green	1,028 0 0	1,050 0 0
Thomas Adams, Hackney	1,020 0 0	1,570 0 0
John Parker, Acton	1,075 0 0	1,406 0 0
Nowell & Robson, Kensington	1,039 0 0	1,520 0 0
James Pizzey, Hornsey	1,065 0 0	1,465 0 0
James Hare, Clapham	1,025 0 0	1,435 0 0
M. W. Rowles, Acton	1,026 0 0	1,426 0 0
A. F. James, Hythe, Kent	1,035 19 3	1,411 12 8
R. Finnegan, Northampton	997 0 0	1,443 0 0
James Bloomfield, Tottenham	965 0 0	1,435 0 0
John Cardus, Acton	878 0 0	1,359 0 0

For farm buildings at Sevenoaks, for Mr. F. Tooth. Mr. George Judge, architect. Quantities supplied by Mr. W. H. Brayshaw:—

A. Deards	£1,815 0 0
L. H. & R. Roberts	1,716 0 0
J. B. Axford	1,675 0 0
W. Wiltshire	1,640 10 0
J. M. Macey & Sons	1,597 0 0
Clarke & Bracey	1,594 0 0
S. C. Parmenter (accepted)	1,588 0 0
Fittings.	
Musgrave & Co. (accepted)	£267 2 6

For converting school-house building, &c., at Watford-heath, into cottages. Mr. George Judge, architect. Quantities not supplied:—

A. W. Chadwick	£595 0 0
Clifford & Gough	544 0 0
L. H. & R. Roberts	485 0 0
G. & J. Waterman	458 0 0
T. Bonnet (accepted)	430 0 0

For erection of a house and offices at Goring, Oxon., for Mr. W. H. Wellsteed. Mr. W. Ravenscroft, architect. Quantities by Messrs. Cooper & Sons:—

	Estimates Nos. 1 & 2.	Bath stone instead of Terra Cotta.	Corse-hill instead of Terra Cotta.
Higgs, Goring	£2,174	£2,158	—
White, Reading	2,107	2,051	2,071
Searle, Reading	2,037	1,981	1,998
Rider & Son, London	2,003	1,930	2,005
Dodd, Caversham	1,976	1,906	1,950
Cordrey, Arborfield	1,906	1,866	—
Kimberley, Banbury	1,896	1,896	1,903
East, Reading	1,895	1,832	1,950
Strong, Reading	1,809	1,742	1,800
Grover, Reading	1,801	1,838	1,955
Bottrill, Reading	1,770*	1,710	1,779
Cook, Burghfield	1,603†	1,575	1,560

*Accepted subject to a few modifications.
†Withdrawn.

For additions and alterations to the Red Lion and Wheatsheaf public-house, Deptford, for Mr. Rich. Messrs. Wilson, Son & Aldwinckle, architects. Quantities supplied:—

Beale	£1,550 0 0
Toms	1,410 0 0
Hall, Beddall & Co.	1,360 0 0
Cox	1,220 0 0
Shurmur (accepted)	1,210 0 0

For gravelling yards at the Lambeth Workhouse. Mr. T. W. Aldwinckle, architect:—

Sawyer	£350
Mayo	270
Taylor	232

For two houses at Oakfield Park, Croydon, for Mr. W. Elston. Mr. C. Hunt, architect:—

Taylor	£1,815 0 0
Bristow	1,500 0 0
Hyde	1,398 0 0
Hollidge & Stuart	1,340 0 0
Maides & Harper	1,325 0 0
Smith & Bullid	1,095 0 0
Waddey	1,075 0 0

For the erection of a warehouse in Ludgate-square, St. Paul's Churchyard. Mr. Peebles, architect:—

Kirk & Randall	£5,371 0 0
Lathey Brothers	5,327 0 0
Clarke & Bracey	5,169 0 0
Colls & Sons	5,113 0 0
F. Mark	5,018 0 0
William Brass	5,004 0 0
Samuel J. Jerrard	4,994 0 0
Ashby Brothers	4,852 0 0
James Morter	4,837 0 0
Perry & Co.	4,593 0 0
E. Lawrence	4,587 0 0
Macey & Sons	4,531 0 0

For the erection of a house in the Sebert-road, Forest-gate, for Mr. J. T. Remmington. Mr. H. C. Smart, architect:—

John Brickell	£609 2 0
Arthur Porter	549 0 0
Joseph T. Vear	495 0 0
Thurston & Beardwell (accepted)	409 0 0

For new electric light works at Earl-street, Hastings. Mr. E. W. T. Hennah, architect :—

Rodda	£3,700 0 0
Jenkins	3,575 0 0
White	3,557 0 0
Howell & Son	3,495 0 0
Taylor	3,380 0 0
Womersley	3,350 0 0
Parks	3,348 0 0
Avis	3,295 0 0
Taylor Bros.	3,280 0 0
Viejor	3,250 0 0
Eldridge & Son	3,250 0 0
Stubberfield	3,150 0 0
Michael	3,135 0 0
Elliott & Warman	3,100 0 0
Vidler (accepted)	3,060 0 0

For the erection of a new house at Watford, Herts, for Mr. R. M. C. James. Geo. Ashby Lean architect. Quantities by architect :—

B. Myring	£2,173 17 7
W. B. Neal	1,922 10 0
T. Turner	1,844 14 0
E. Louis	1,779 0 0
G. & J. Waterman	1,747 0 0
A. W. Chadwick	1,733 10 0

For the erection of Nos. 31 and 33, Harley-street, Cavendish-square. Mr. Robert Willey, architect :—

Clarke and Bracey	£6,657 0 0
Dorey	4,511 0 0
W. Smith	4,377 0 0
Woodward	4,000 0 0
Nye	3,425 0 0
Penny & Co., Ealing (accepted)	3,370 0 0

For the erection of ten new houses, Bromley, Kent, for Mr. Richard Smith. Mr. James Dudley, architect :—

W. Bamford	£2,195 0 0
H. L. Holloway	2,170 0 0
W. H. Durrant	2,159 0 0
Grubb	2,075 0 0
Satchell	1,936 0 0
Payne	1,920 0 0

For the erection of a new dwelling-house, No. 83, New-street, Deptford, and repairs to four houses adjacent, for Mr. Richard Smith. Mr. James Dudley, architect :—

W. H. Durrant	£1,657 0 0
W. Bamford	1,610 0 0
H. L. Holloway (accepted)	1,567 0 0

For new wine vaults to Messrs. Nicholson & Co.'s distillery, St. John-street, Clerkenwell. Messrs. Crickmay & Son, architects. Quantities by Messrs. Nixon & Raven :—

Dove Bros.	£6,395 0 0
McLachlan & Sons	6,187 0 0
Brass	6,154 0 0
Higgs & Hill	5,790 0 0
Holland & Hannen	5,568 0 0
Bangs	5,548 0 0

For new parish room to St. John's Church, Angell Town, Brixton. Mr. Sextus Dyball, architect. Quantities supplied :—

	Room.	Vestibule.
Taylor	£1,030 0 0	£55 0 0
Brass	997 0 0	50 0 0
Conder	997 0 0	65 0 0
McLachlan & Sons	945 0 0	45 0 0
Dove Bros.	875 0 0	60 0 0

For alterations and additions to Dummer Rectory, Hants, for the Rev. G. Jones, M.A. Messrs. Hugh E. Raynbird & Sons, architects, Basingstoke :—

Pusey	£464 0 0
Tigwell	449 10 0
Blunden	395 0 0
Tew	386 0 0
Sims	378 0 0
Mussellwhite	368 10 0
Wilks, North Waltham	365 10 0

For alterations and additions to the Mill House, Old Basing, Hants, for Mr. J. W. Smith. Messrs. Hugh E. Raynbird & Sons, architects :—

Blunden	£392 0 0
Sims	376 18 0
Wilks	371 0 0
Mussellwhite	349 10 0
Harris & Shumwood (accepted)	332 10 7

For alterations and additions in Queen's-road, Hastings, for Mr. John Gallop. Mr. H. Ward, architect :—

Jenkins	£385 0 0
Elliott & Warman	358 0 0
Aviss	325 0 0
C. & E. Harman (accepted)	315 0 0

For alterations and additions to the receiving wards and "B" Block at the workhouse, Marloes-road, Kensington, for the guardians of the parish of Kensington. Messrs. A. & C. Harston, architects. Quantities supplied :—

Gibbs & Flew	£2,500 0 0
Holt	2,250 0 0
Toser	2,239 0 0
C. Wall	2,135 0 0
Lucas & Son	2,023 0 0
Thorn	2,000 0 0
Carpenter & Poole	1,997 0 0
Crockett	1,950 0 0
Meare	1,948 0 0
Ennor, Julian, & Co.	1,920 0 0
Shurmur	1,999 0 0
Nightingale, Albert Embankment (accepted)	1,866 0 0

For distempering, whitening, and other works at the Poplar and Stepney Sick Asylum, Devons-road, Bromley, for the managers. Messrs. A. & C. Harston, architects :—

Ellis & Co.	£380 0 0
Stevenson	269 0 0
A. W. Derby	248 0 0
W. Wythe, Dalston (accepted)	246 10 0

For proposed residence, Union-street, Maidstone, for Mr. F. W. Robson, Mr. Edward W. Stephens, architect :—

Avard, Maidstone	£1,197 0 0
Vaughan, Maidstone	1,170 0 0
Elmore, Maidstone	1,160 0 0
Wallis & Clements, Maidstone	1,157 0 0
White & Joy, Maidstone	1,130 10 0
Simmonds, Maidstone	1,122 0 0
Cox Bros., Maidstone (accepted)	1,085 0 0

For additions and alterations at Spring Hill House, St. Mary Bourne, Hants, for Colonel Cator. Mr. A. W. Galbraith, architect :—

Weeks, Whitchurch	£851 0 0
Sealey, Whitchurch (accepted)	770 0 0

For the erection of three shops and dwelling-houses, five cottages, stabling, &c., at Loampit Vale, Lewisham, for Mr. H. J. Perry, Reading. Mr. W. Warren, architect :—

Humphreys	£3,170 0 0
Kirk & Randall	3,150 0 0
Banks	2,979 0 0
Jerrard	2,979 0 0
Redman	2,890 0 0
H. L. Holloway (accepted)	2,825 0 0

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